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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:44:17 ; Search time 51.7492 Seconds  
(without alignments)  
119.580 Million cell updates/sec

Title: US-09-787-082A-22

Perfect score: 102

Sequence: 1 GCCSLPPCALSNPDYC 16

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : A\_Geneseq\_16Dec04:\*

1: Geneseqp1980s:\*

2: Geneseqp1980s:\*

3: Geneseqp2000s:\*

4: Geneseqp2001s:\*

5: Geneseqp2002s:\*

6: Geneseqp2003as:\*

7: Geneseqp2003bs:\*

8: Geneseqp2004s:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	102	100.0	16	2	AAY24164 Alpha-con
2	102	100.0	16	5	AAM50844 Conus pen
3	99	97.1	16	2	AAY24158 Alpha-con
4	97	95.1	16	2	AAY24159 Alpha-con
5	94	92.2	16	2	AAY24163 Alpha-con
6	90	88.2	56	3	AAB21454 Cone snai
7	86	84.3	56	3	AAB21455 Cone snai
8	78	76.5	56	3	AAB21615 Cone snai
9	75	73.5	16	2	AAY24160 Alpha-con
10	75	73.5	16	2	AAY24166 Alpha-con
11	75	73.5	17	2	AAY24166 Alpha-con
12	75	73.5	19	5	ABG99819 Conus sp
13	75	73.5	56	3	AAB21427 Cone snai
14	75	73.5	56	3	AAB21430 Cone snai
15	75	73.5	59	3	AAB21463 Cone snai
16	75	73.5	61	5	ABG99637 Conus sp
17	74	72.5	21	3	AAB21620 Cone snai
18	74	72.5	56	3	AAB21459 Cone snai
19	70	68.6	16	2	AAR75274 A-lineage
20	70	68.6	38	3	AAB21609 Cone snai
21	70	68.6	41	3	AAB21598 Cone snai
22	70	68.6	60	3	AAB21435 Cone snai
23	70	68.6	65	2	AAM24901 C. bandan
24	69	67.6	17	5	ABG99824 Conus sp
25	69	67.6	61	5	ABG99646 Conus sp

26	68	66.7	16	2	AAY24162	Aay24162 Alpha-con
27	68	66.7	16	2	AAY09524	Aay09524 Alpha-con
28	68	66.7	16	2	AAM89495	Aam89495 Conopepti
29	68	66.7	65	3	AAB15162	Aab15162 Alpha-con
30	68	66.7	65	5	AAB19758	Aab19758 Conus sul
31	67	65.7	15	2	AAM89494	Aam89494 Conopepti
32	67	65.7	23	3	AAB21573	Aab21573 Cone snai
33	67	65.7	58	3	AAB21428	Aab21428 Cone snai
34	66	64.7	20	3	AAB21472	Aab21472 Cone snai
35	66	64.7	21	5	ABG99826	Abg99826 Conus sp
36	66	64.7	41	3	AAB21633	Aab21633 Cone snai
37	66	64.7	62	5	ABG99650	Abg99650 Conus sp
38	65	63.7	16	6	ABP60018	Abp60018 Alpha-con
39	65	63.7	17	5	ABG99833	Abg99833 Conus sp
40	65	63.7	41	3	AAB21608	Aab21608 Cone snai
41	65	63.7	41	3	AAB21570	Aab21570 Cone snai
42	65	63.7	62	3	AAB21440	Aab21440 Cone snai
43	65	63.7	63	5	ABG99664	Abg99664 Conus sp
44	64.5	63.2	17	5	ABG99830	Abg99830 Conus sp
45	64.5	63.2	63	5	ABG99658	Abg99658 Conus sp

## ALIGNMENTS

## RESULT 1

AAY24164

ID AAY24164 standard; peptide; 16 AA.

XX AAY24164;

DT 10-SEP-1999 (first entry)

DE Alpha-conotoxin peptide SEQ ID NO:12.

XX Alpha-conotoxin; neuronal nicotinic acetylcholine receptor; nAChR;  
KW small cell lung carcinoma; cardiovascular disorder; nicotine addiction;  
KW gastric motility disorder; urinary incontinence; mood disorder;  
KW bipolar disorder; unipolar depression; dysthymia;  
KW seasonal affective disorder.  
OS Conus purpurascens.

XX WO9933482-A1.

PN 08-JUL-1999.

XX 23-DEC-1998; 98WO-US027367.

XX 31-DEC-1997; 97US-0070153P.

PR 03-APR-1998; 98US-0080588P.

XX (UTAH ) UNIV UTAH RES FOUND.

PI Olivera BM, McIntosh JM, Yoshikami D, Cartier GE, Luo S;

XX WPI; 1999-405367/34.

XX Alpha-conotoxin peptides that are used to treat disorders regulated at  
neuronal nicotinic acetylcholine receptors.  
Claim 28; Page 6; 40pp; English.  
The present sequence represents a specifically claimed example of an  
alpha-conotoxin, which can be used to treat disorders regulated at  
neuronal nicotinic acetylcholine receptors (nAChR). The alpha-conotoxins  
are useful for preparing a pharmaceutical composition for treating  
disorders regulated at neuronal nAChR, especially alpha 3 beta 2, alpha 3  
beta 4 or alpha 7-containing nAChR. Disorders that can be treated include  
cardiovascular disorders, a gastric motility disorder, urinary  
incontinence, nicotine addiction, a mood disorder or small cell lung  
carcinoma. Mood disorders include bipolar disorder, unipolar depression,  
dysthymia and seasonal affective disorder. The alpha- conotoxins can also

CC be used for diagnosis of small cell lung carcinoma. The alpha-conotoxin  
 CC antagonists are able to discriminate between non- symmetrical ligand  
 CC binding interfaces present on the nAChR. The alpha- conotoxin has the  
 CC ability to potentially block any receptor containing a alpha beta subunit  
 CC interface, regardless of what other subunits may be present in the  
 CC receptor complex  
 XX  
 SQ Sequence 16 AA;

Query Match 100.0%; Score 102; DB 2; Length 16;  
 Best Local Similarity 100.0%; Pred. No. 1.6e-05;  
 Matches 16; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
 DB 1 GCCSLPPCALSNPDYC 16

RESULT 2  
 AAM50844  
 ID AAM50844 standard; peptide; 16 AA.

XX AC AAM50844;

XX DT 01-MAY-2002 (first entry)

XX DE Conus pennaceus Trk modulator peptide.

XX KW Trk; receptor tyrosine kinase; modulator; snail; neurotrophic factor;  
 KW NTF; mimetic; Huntington's disease; Parkinson's disease;  
 KW Alzheimer's disease; amyotrophic lateral sclerosis;  
 KW neurodegenerative disease; cancer; neuroprotective; nootropic;  
 KW anticonvulsant; antiparkinsonian; cytostatic; therapy; cyclic.

XX OS Conus pennaceus.

XX PN WO200203071-A2.

XX PD 10-JAN-2002.

XX PF 05-JUL-2001; 2001WO-US021472.

XX PR 05-JUL-2000; 2000US-0215778P.

XX PA (PANG-) PANGENE CORP.

XX PI Bates AT;

XX DR WPI; 2002-179638/23.

XX PT Screening for a neurotrophic factor mimetic, useful for treating, e.g.,  
 PT cancer and Alzheimer's, comprises combining a candidate mimetic with a  
 PT fragment of a tyrosine kinase protein.

XX PS Claim 16; Page 10; 107pp; English.

XX CC The present sequence is that of a naturally-occurring cyclic peptide from  
 CC the tropical snail Conus pennaceus shell. The peptide is capable of  
 CC modulating the binding of a neurotrophin to a Trk (receptor tyrosine  
 CC kinase) protein, and of modulating the activity of a Trk protein. The  
 CC invention concerns Trks and their ligands that modulate cell growth,  
 CC differentiation and survival. Trk proteins are known to mediate the  
 CC activities of neurotrophins and are also known proto-oncogenes. Methods  
 CC are claimed for screening for small molecule neurotrophic factor mimetics  
 CC capable of binding to a Trk protein or of modulating the binding of a  
 CC neurotrophin to a Trk protein. Also claimed are medicaments comprising  
 CC the present cyclic peptide for treatment of cancer or a neurodegenerative  
 CC disease selected from Huntington's disease, Parkinson's disease,  
 CC Alzheimer's disease and amyotrophic lateral sclerosis

XX SQ Sequence 16 AA;

Query Match 100.0%; Score 102; DB 5; Length 16;

Best Local Similarity 100.0%; Pred. No. 1.6e-05;  
 Matches 16; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 GCCSLPPCALSNPDYC 16  
 DB 1 GCCSLPPCALSNPDYC 16

RESULT 3  
 AAY24158

ID AAY24158 standard; peptide; 16 AA.

XX AC AAY24158;

XX DT 10-SEP-1999 (first entry)

XX DE Alpha-conotoxin peptide SEQ ID NO:10.

XX KW Alpha-conotoxin; neuronal nicotinic acetylcholine receptor; nAChR;  
 KW small cell lung carcinoma; cardiovascular disorder; nicotine addiction;  
 KW gastric motility disorder; urinary incontinence; mood disorder;  
 KW bipolar disorder; unipolar depression; dysthymia;  
 KW seasonal effective disorder.

XX OS Conus purpurascens.

XX OS Synthetic.

XX PN WO9933482-A1.

XX PD 08-JUL-1999.

XX PF 23-DEC-1998; 98WO-US027367.

XX PR 31-DEC-1997; 97US-0070153P.

XX PR 03-APR-1998; 98US-0080588P.

XX PA (UTAH ) UNIV UTAH RES FOUND.

XX PI Olivera BM, McIntosh JM, Yoshikami D, Cartier GE, Luo S;

XX DR WPI; 1999-405367/34.

XX PT Alpha-conotoxin peptides that are used to treat disorders regulated at  
 PT neuronal nicotinic acetylcholine receptors.

XX PS Claim 12; Page 27; 40pp; English.

XX CC The present sequence represents a specifically claimed example of an  
 CC alpha-conotoxin from the general formula given in AAY24155, which can be  
 CC used to treat disorders regulated at neuronal nicotinic acetylcholine  
 CC receptors (nAChR). The alpha-conotoxins are useful for preparing a  
 CC pharmaceutical composition for treating disorders regulated at neuronal  
 CC nAChR, especially alpha 3 beta 2, alpha 3 beta 4 or alpha 7-containing  
 CC nAChR. Disorders that can be treated include cardiovascular disorders, a  
 CC gastric motility disorder, urinary incontinence, nicotine addiction, a  
 CC mood disorder or small cell lung carcinoma. Mood disorders include  
 CC bipolar disorder, unipolar depression, dysthymia and seasonal effective  
 CC disorder. The alpha-conotoxins can also be used for diagnosis of small  
 CC cell lung carcinoma. The alpha-conotoxin antagonists are able to  
 CC discriminate between non-symmetrical ligand binding interfaces present on  
 CC the nAChR. The alpha-conotoxin has the ability to potentially block any  
 CC receptor containing a alpha beta subunit interface, regardless of what  
 CC other subunits may be present in the receptor complex

XX SQ Sequence 16 AA;

Query Match 97.1%; Score 99; DB 2; Length 16;

Best Local Similarity 93.8%; Pred. No. 3.6e-05;

Matches 15; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16

DB 1 GCCSLPPCALSNPDYC 16

RESULT 4  
 AAY24159  
 ID AAY24159 standard; peptide; 16 AA.  
 AC AAY24159;  
 XX  
 XX  
 XX  
 DT 10-SEP-1999 (first entry)  
 DE Alpha-conotoxin peptide SEQ ID NO:11.  
 DE  
 DE Alpha-conotoxin; neuronal nicotinic acetylcholine receptor; nAChR;  
 KW small cell lung carcinoma; cardiovascular disorder; nicotine addiction;  
 KW gastric motility disorder; urinary incontinence; mood disorder;  
 KW bipolar disorder; unipolar depression; dysthymia;  
 KW seasonal effective disorder.  
 XX  
 XX Conus sp.  
 OS Synthetic.  
 OS  
 PN WO9933482-A1.  
 XX  
 XX  
 PD 08-JUL-1999.  
 XX  
 XX  
 PF 23-DEC-1998; 98WO-US027367.  
 XX  
 XX  
 PR 31-DEC-1997; 97US-0070153P.  
 PR 03-APR-1998; 98US-0080588P.  
 XX  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 XX  
 PI Olivera BM, McIntosh JM, Yoshikami D, Cartier GE, Luo S;  
 XX WPI; 1999-405367/34.  
 XX  
 XX Alpha-conotoxin peptides that are used to treat disorders regulated at  
 PT neuronal nicotinic acetylcholine receptors.  
 XX  
 PS Claim 12; Page 27; 40pp; English.  
 XX  
 XX The present sequence represents a specifically claimed example of an  
 CC alpha-conotoxin from the general formula given in AAY24155, which can be  
 CC used to treat disorders regulated at neuronal nicotinic acetylcholine  
 CC receptors (nAChR). The alpha-conotoxins are useful for preparing a  
 CC pharmaceutical composition for treating disorders regulated at neuronal  
 CC nAChR, especially alpha 3 beta 2, alpha 3 beta 4 or alpha 7-containing  
 CC nAChR. Disorders that can be treated include cardiovascular disorders, a  
 CC gastric motility disorder, urinary incontinence, nicotine addiction, a  
 CC mood disorder or small cell lung carcinoma. Mood disorders include  
 CC bipolar disorder, unipolar depression, dysthymia and seasonal effective  
 CC disorder. The alpha-conotoxins can also be used for diagnosis of small  
 CC cell lung carcinoma. The alpha-conotoxin antagonists are able to  
 CC discriminate between non-symmetrical ligand binding interfaces present on  
 CC the nAChR. The alpha-conotoxin has the ability to potentially block any  
 CC receptor containing a alpha beta subunit interface, regardless of what  
 CC other subunits may be present in the receptor complex  
 XX  
 XX Sequence 16 AA;  
 SQ  
 Query Match 95.1%; Score 97; DB 2; Length 16;  
 Best Local Similarity 93.8%; Pred. No. 6.2e-05;  
 Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 GCCSLPPCALSNDYDC 16  
 DB ||||| :|||  
 1 GCCSLPPCAASNDYDC 16  
 RESULT 5  
 AAY24163  
 ID AAY24163 standard; peptide; 16 AA.  
 XX

AC AAY24163;  
 XX  
 DT 10-SEP-1999 (first entry)  
 DE Alpha-conotoxin peptide SEQ ID NO:9.  
 DE  
 DE Alpha-conotoxin; neuronal nicotinic acetylcholine receptor; nAChR;  
 KW small cell lung carcinoma; cardiovascular disorder; nicotine addiction;  
 KW gastric motility disorder; urinary incontinence; mood disorder;  
 KW bipolar disorder; unipolar depression; dysthymia;  
 KW seasonal effective disorder.  
 XX  
 XX Conus purpurascens.  
 OS  
 XX WO9933482-A1.  
 PN  
 XX  
 PD 08-JUL-1999.  
 XX  
 XX  
 PF 23-DEC-1998; 98WO-US027367.  
 XX  
 XX  
 PR 31-DEC-1997; 97US-0070153P.  
 PR 03-APR-1998; 98US-0080588P.  
 XX  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 XX  
 PI Olivera BM, McIntosh JM, Yoshikami D, Cartier GE, Luo S;  
 XX WPI; 1999-405367/34.  
 XX  
 XX Alpha-conotoxin peptides that are used to treat disorders regulated at  
 PT neuronal nicotinic acetylcholine receptors.  
 XX  
 PS Claim 28; Page 6; 40pp; English.  
 XX  
 XX The present sequence represents a specifically claimed example of an  
 CC alpha-conotoxin, which can be used to treat disorders regulated at  
 CC neuronal nicotinic acetylcholine receptors (nAChR). The alpha-conotoxins  
 CC are useful for preparing a pharmaceutical composition for treating  
 CC disorders regulated at neuronal nAChR, especially alpha 3 beta 2, alpha 3  
 CC beta 4 or alpha 7-containing nAChR. Disorders that can be treated include  
 CC cardiovascular disorders, a gastric motility disorder, urinary  
 CC incontinence, nicotine addiction, a mood disorder or small cell lung  
 CC carcinoma. Mood disorders include bipolar disorder, unipolar depression,  
 CC dysthymia and seasonal effective disorder. The alpha-conotoxins can also  
 CC be used for diagnosis of small cell lung carcinoma. The alpha-conotoxin  
 CC antagonists are able to discriminate between non-symmetrical ligand  
 CC binding interfaces present on the nAChR. The alpha-conotoxin has the  
 CC ability to potentially block any receptor containing a alpha beta subunit  
 CC interface, regardless of what other subunits may be present in the  
 CC receptor complex  
 XX  
 XX Sequence 16 AA;  
 SQ  
 Query Match 92.2%; Score 94; DB 2; Length 16;  
 Best Local Similarity 87.5%; Pred. No. 0.00014;  
 Matches 14; Conservative 1; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 GCCSLPPCALSNDYDC 16  
 DB ||||| :|||  
 1 GCCSLPPCAASNDYDC 16  
 RESULT 6  
 AAB21454  
 ID AAB21454 standard; protein; 56 AA.  
 XX  
 AC AAB21454;  
 XX  
 DT 19-JAN-2001 (first entry)  
 DE Cone snail alpha-conotoxin SEQ ID NO: 115.  
 XX Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW

KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 XX small cell lung carcinoma.  
 OS Conus pennaceus.  
 XX WO200044776-A1.  
 PN 03-AUG-2000.  
 PD 28-JAN-2000; 2000WO-US001979.  
 XX 29-JAN-1999; 99US-0118381P.  
 PF (UTAH ) UNIV UTAH RES FOUND.  
 XX (COGN-) COGNETIX INC.  
 PI Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;  
 XX WPI; 2000-505965/45.  
 DR N-PSDB; AAB89429.  
 XX alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 PT e.g. as neuromuscular blocking agents for use in surgery and for treating  
 PT unipolar depression.  
 XX Claim 39; Page 40; 229pp; English.  
 XX The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.  
 CC These peptides are found in minute quantities in the venom of the snails,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC as bipolar disorder, urinary incontinence, nicotine addiction, mood disorders such  
 CC as affective disorder, and small cell lung carcinoma  
 XX Sequence 56 AA;  
 SQ Query Match 88.2%; Score 90; DB 3; Length 56;  
 Best Local Similarity 81.2%; Pred. No. 0.0012; Mismatches 1; Indels 0; Gaps 0;  
 Matches 13; Conservative 2; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 GCCSLPPCCALSNPDYC 16  
 DB 40 GCCSHPPCCAMNPDYC 55  
 RESULT 7  
 AAB21455  
 ID AAB21455 standard; protein; 56 AA.  
 AC AAB21455;  
 XX 19-JAN-2001 (first entry)  
 DT Cone snail alpha-conotoxin SEQ ID NO: 117.  
 DE Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.  
 OS Conus pennaceus.  
 XX WO200044776-A1.  
 PN 03-AUG-2000.  
 PD 28-JAN-2000; 2000WO-US001979.  
 XX 29-JAN-1999; 99US-0118381P.  
 PF (UTAH ) UNIV UTAH RES FOUND.  
 XX (COGN-) COGNETIX INC.  
 PI Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;  
 XX WPI; 2000-505965/45.  
 DR N-PSDB; AAB89429.  
 XX alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 PT e.g. as neuromuscular blocking agents for use in surgery and for treating  
 PT unipolar depression.  
 XX Claim 39; Page 40; 229pp; English.  
 XX The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.  
 CC These peptides are found in minute quantities in the venom of the snails,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC as bipolar disorder, urinary incontinence, nicotine addiction, mood disorders such  
 CC as affective disorder, and small cell lung carcinoma  
 XX Sequence 56 AA;  
 SQ Query Match 88.2%; Score 90; DB 3; Length 56;  
 Best Local Similarity 81.2%; Pred. No. 0.0012; Mismatches 1; Indels 0; Gaps 0;  
 Matches 13; Conservative 2; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 GCCSLPPCCALSNPDYC 16  
 DB 40 GCCSHPPCCAMNPDYC 55  
 RESULT 8  
 AAB21615  
 ID AAB21615 standard; peptide; 56 AA.  
 AC AAB21615;  
 XX 19-JAN-2001 (first entry)  
 DT Cone snail alpha-conotoxin SEQ ID NO: 359.  
 DE Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.  
 OS Conus obscurus.  
 XX WO200044776-A1.  
 PN 03-AUG-2000.  
 PD 28-JAN-2000; 2000WO-US001979.  
 XX 29-JAN-1999; 99US-0118381P.  
 PF (UTAH ) UNIV UTAH RES FOUND.  
 XX (COGN-) COGNETIX INC.  
 PI Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;  
 XX WPI; 2000-505965/45.

PF 28-JAN-2000; 2000WO-US001979.  
 XX 29-JAN-1999; 99US-0118381P.  
 XX (UTAH ) UNIV UTAH RES FOUND.  
 PA (COGN-) COGNETIX INC.  
 XX Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;  
 XX WPI; 2000-505965/45.  
 DR N-PSDB; AAB89430.  
 XX alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 PT e.g. as neuromuscular blocking agents for use in surgery and for treating  
 PT unipolar depression.  
 XX Claim 39; Page 40; 229pp; English.  
 XX The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.  
 CC These peptides are found in minute quantities in the venom of the snails,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC as bipolar disorder, urinary incontinence, nicotine addiction, mood disorders such  
 CC as affective disorder, and small cell lung carcinoma  
 XX Sequence 56 AA;  
 SQ Query Match 84.3%; Score 86; DB 3; Length 56;  
 Best Local Similarity 81.2%; Pred. No. 0.0037;  
 Matches 13; Conservative 1; Mismatches 2; Indels 0; Gaps 0;  
 QY 1 GCCSLPPCCALSNPDYC 16  
 DB 40 GCCSHPPCCFLNPDYC 55  
 RESULT 8  
 AAB21615  
 ID AAB21615 standard; peptide; 56 AA.  
 AC AAB21615;  
 XX 19-JAN-2001 (first entry)  
 DT Cone snail alpha-conotoxin SEQ ID NO: 359.  
 DE Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.  
 OS Conus obscurus.  
 XX WO200044776-A1.  
 PN 03-AUG-2000.  
 PD 28-JAN-2000; 2000WO-US001979.  
 XX 29-JAN-1999; 99US-0118381P.  
 PF (UTAH ) UNIV UTAH RES FOUND.  
 XX (COGN-) COGNETIX INC.  
 PI Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;  
 XX WPI; 2000-505965/45.



DR N-PSDB; AA89511.  
 XX alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 PT e.g. as neuromuscular blocking agents for use in surgery and for treating  
 PT unipolar depression.  
 XX Claim 39; Page 61; 229pp; English.  
 XX The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.  
 CC These peptides are found in minute quantities in the venom of the snails,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC disorders, urinary incontinence, nicotine addiction, mood disorders such  
 CC as bipolar disorder, unipolar depression, dysthymia and seasonal  
 CC affective disorder, and small cell lung carcinoma  
 XX Sequence 56 AA;  
 SQ

Query Match 76.5%; Score 78; DB 3; Length 56;  
 Best Local Similarity 75.0%; Pred. NO. 0.033;  
 Matches 12; Conservative 1; Mismatches 3; Indels 0; Gaps 0;  
 QY 1 GCCSLPPCALSNDYC 16  
 ||||| :|||  
 DB 40 GCCSHPPCAQNNQDYC 55  
 ||||| :|||

RESULT 9  
 AAY24160  
 ID AAY24160 standard; peptide; 16 AA.  
 XX  
 AC AAY24160;  
 XX  
 DT 10-SEP-1999 (first entry)  
 XX  
 DE Alpha-conotoxin peptide SEQ ID NO:5.  
 XX  
 KW Alpha-conotoxin; neuronal nicotinic acetylcholine receptor; nAChR;  
 KW small cell lung carcinoma; cardiovascular disorder; nicotine addiction;  
 KW gastric motility disorder; urinary incontinence; mood disorder;  
 KW bipolar disorder; unipolar depression; dysthymia;  
 KW seasonal affective disorder.  
 XX  
 OS Conus aulicus.  
 XX  
 PN WO9933482-A1.  
 XX  
 PD 08-JUL-1999.  
 XX  
 PF 23-DEC-1998; 98WO-US027367.  
 XX  
 PR 31-DEC-1997; 97US-0070153P.  
 PR 03-APR-1998; 98US-0080588P.  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 XX  
 PI Olivera BM, McIntosh JM, Yoshikami D, Cartier GE, Luo S;  
 XX WPI; 1999-405367/34.  
 DR  
 XX Alpha-conotoxin peptides that are used to treat disorders regulated at  
 PT neuronal nicotinic acetylcholine receptors.  
 XX  
 PS Claim 28; Page 6; 40pp; English.  
 CC The present sequence represents a specifically claimed example of an  
 CC alpha-conotoxin, which can be used to treat disorders regulated at  
 CC neuronal nicotinic acetylcholine receptors (nAChR). The alpha-conotoxins

CC are useful for preparing a pharmaceutical composition for treating  
 CC disorders regulated at neuronal nAChR, especially alpha 3 beta 2, alpha 3  
 CC beta 4 or alpha 7-containing nAChR. Disorders that can be treated include  
 CC cardiovascular disorders, a gastric motility disorder, urinary  
 CC incontinence, nicotine addiction, a mood disorder or small cell lung  
 CC carcinoma. Mood disorders include bipolar disorder, unipolar depression,  
 CC dysthymia and seasonal affective disorder. The alpha- conotoxins can also  
 CC be used for diagnosis of small cell lung carcinoma. The alpha- conotoxin  
 CC antagonists are able to discriminate between non- symmetrical ligand  
 CC binding interfaces present on the nAChR. The alpha- conotoxin has the  
 CC ability to potentially block any receptor containing a alpha beta subunit  
 CC interface, regardless of what other subunits may be present in the  
 CC receptor complex  
 XX  
 SQ Sequence 16 AA;  
 Query Match 73.5%; Score 75; DB 2; Length 16;  
 Best Local Similarity 68.8%; Pred. No. 0.027;  
 Matches 11; Conservative 1; Mismatches 4; Indels 0; Gaps 0;  
 QY 1 GCCSLPPCALSNDYC 16  
 ||||| :|||  
 DB 1 GCCSYPPCFATNSDYC 16  
 ||||| :|||

RESULT 10  
 AAW89493  
 ID AAW89493 standard; protein; 16 AA.  
 XX  
 AC AAW89493;  
 XX  
 DT 12-MAR-1999 (first entry)  
 XX  
 DE Conopeptide AuIA.  
 XX  
 KW Conopeptide; Conus aulicus; AuIA; AuIB; AuIC; nAChR; neurotransmitter;  
 KW neuronal nicotinic acetylcholine receptor; presynaptic release;  
 KW tobacco addiction; cardiovascular; gastric motility disorder;  
 KW urinary incontinence.  
 XX  
 OS Conus aulicus.  
 XX  
 FH Key Location/Qualifiers  
 FT Disulfide-bond 2..8  
 FT Disulfide-bond 3..16  
 XX  
 PN WO9851322-A1.  
 XX  
 PD 19-NOV-1998.  
 XX  
 PF 09-APR-1998; 98WO-US007004.  
 XX  
 PR 15-MAY-1997; 97US-00857068.  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 XX  
 PI McIntosh JM, Cartier GE, Yoshikami D, Luo S, Olivera BM;  
 XX WPI; 1999-059683/05.  
 DR  
 XX New conopeptides AuIA, AuIB, and AuIC - target neuronal nicotinic  
 PT acetylcholine receptors and modulate neurotransmitter release.  
 XX  
 PS Claim 10; Page 19; 22pp; English.  
 CC The present sequence represents a specifically claimed conopeptide.  
 CC Conopeptides are used to target neuronal nicotinic acetylcholine  
 CC receptors (nAChRs) and selectively modulate the presynaptic release of  
 CC specific neurotransmitters, for example in the treatment of tobacco  
 CC addiction, cardiovascular and gastric motility disorders, and urinary  
 CC incontinence  
 XX  
 SQ Sequence 16 AA;

Query Match 73.5%; Score 75; DB 2; Length 16;  
 Best Local Similarity 68.8%; Pred. No. 0.027;  
 Matches 11; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
 DB 1 GCCSYPPCFATNSDYC 16  
 ||||| :|||

RESULT 11  
 AAY24166  
 ID AAY24166 standard; peptide; 17 AA.  
 AC AAY24166;  
 XX  
 DT 10-SEP-1999 (first entry)  
 DE Alpha-conotoxin peptide SEQ ID NO:6.  
 KW Alpha-conotoxin; neuronal nicotinic acetylcholine receptor; nAChR;  
 KW small cell lung carcinoma; cardiovascular disorder; nicotine addiction;  
 KW gastric motility disorder; urinary incontinence; mood disorder;  
 KW bipolar disorder; unipolar depression; dysthymia;  
 KW seasonal affective disorder.  
 OS Conus aulicus.  
 OS Synthetic.  
 PN WO9933482-A1.  
 XX  
 PD 08-JUL-1999.  
 XX  
 PF 23-DEC-1998; 98WO-US027367.  
 XX  
 PR 31-DEC-1997; 97US-0070153P.  
 PR 03-APR-1998; 98US-0080588P.  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 XX  
 PI Olivera BM, McIntosh JM, Yoshikami D, Cartier GE, Luo S;  
 XX WPI; 1999-405367/34.  
 XX  
 PT Alpha-conotoxin peptides that are used to treat disorders regulated at  
 PT neuronal nicotinic acetylcholine receptors.  
 XX  
 PS Disclosure; Page 6; 40pp; English.  
 CC The present sequence represents an example of an alpha-conotoxin peptide  
 CC from the general formula given in AAY24165, which can be used to treat  
 CC disorders regulated at neuronal nicotinic acetylcholine receptors  
 CC (nAChR). The alpha-conotoxins are useful for preparing a pharmaceutical  
 CC composition for treating disorders regulated at neuronal nAChR,  
 CC especially alpha 3 beta 2, alpha 3 beta 4 or alpha 7-containing nAChR.  
 CC Disorders that can be treated include cardiovascular disorders, a gastric  
 CC motility disorder, urinary incontinence, nicotine addiction, a mood  
 CC disorder or small cell lung carcinoma. Mood disorders include bipolar  
 CC disorder, unipolar depression, dysthymia and seasonal affective disorder.  
 CC The alpha-conotoxins can also be used for diagnosis of small cell lung  
 CC carcinoma. The alpha-conotoxin antagonists are able to discriminate  
 CC between non-symmetrical ligand binding interfaces present on the nAChR.  
 CC The alpha-conotoxin has the ability to potentially block any receptor  
 CC containing an alpha beta subunit interface, regardless of what other  
 CC subunits may be present in the receptor complex  
 XX Sequence 17 AA;

Query Match 73.5%; Score 75; DB 2; Length 17;  
 Best Local Similarity 68.8%; Pred. No. 0.028;  
 Matches 11; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
 DB 1 GCCSYPPCFATNSDYC 16  
 ||||| :|||

RESULT 13  
 AAB21427  
 ID AAB21427 standard; protein; 56 AA.  
 XX  
 AC AAB21427;

Db 2 GCCSYPPCFATNSDYC 17  
 ||||| :|||

RESULT 12  
 AEG99819  
 ID AEG99819 standard; peptide; 19 AA.  
 XX  
 AC AEG99819;  
 XX  
 DT 17-JAN-2003 (first entry)  
 DE Conus sp conotoxin-associated peptide SEQ ID 604.  
 KW Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;  
 KW ligand-gated ion channel modulator; pain-relief.  
 XX  
 OS Conus quercinus.  
 PN WO200264740-A2.  
 XX  
 PD 22-AUG-2002.  
 XX  
 PF 11-FEB-2002; 2002WO-US003887.  
 XX  
 PR 09-FEB-2001; 2001US-0267408P.  
 XX  
 PA (COGN-) COGNETIX INC.  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 XX  
 PI Olivera BM, McIntosh JM, Watkins M, Garrett JE, Cruz LJ;  
 PI Grille M, Walker CS, Shetty R, Jones RM, Schoenfeld RM;  
 XX WPI; 2002-706921/76.  
 XX  
 PT New cone snail conotoxin peptides, useful as a pain reliever for  
 PT alleviating pain in an individual suffering from pain or who is about to  
 PT be subjected to a pain-causing event, or for treating voltage-gated ion  
 PT channel disorders.  
 XX  
 PS Claim 1; Page 298; 305pp; English.  
 XX  
 CC This invention describes novel conotoxin peptides from the cone snail,  
 CC genus Conus which have analgesic activity and can act as a voltage-gated  
 CC ion channel modulator or a ligand-gated ion channel modulator. The  
 CC conotoxin peptide is useful as a pain-relieving agent for alleviating  
 CC pain in an individual who is either exhibiting pain or is about to be  
 CC subjected to a pain-causing event. The conotoxin peptide is also useful  
 CC for treating or preventing disorders associated with voltage-gated ion  
 CC channel disorders, ligand-gated ion channel disorders or receptor  
 CC disorders. The radiolabeled conotoxin peptide is also useful for  
 CC characterizing a new site on these receptors or channels, and for  
 CC screening and identifying novel small molecules that interact with the  
 CC above-mentioned channels or receptors, which are monoamine transporters.  
 CC AEG99360-AEG99853 represent the conotoxin protein and peptides described  
 CC in the disclosure of the invention  
 XX Sequence 19 AA;

Query Match 73.5%; Score 75; DB 5; Length 19;  
 Best Local Similarity 75.0%; Pred. No. 0.031;  
 Matches 12; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
 DB 2 GCCSDPACAVSNPDIC 17  
 ||||| :|||

RESULT 13  
 AAB21427  
 ID AAB21427 standard; protein; 56 AA.  
 XX  
 AC AAB21427;

XX 19-JAN-2001 (first entry)  
 XX Cone snail alpha-conotoxin SEQ ID NO: 61.  
 DE  
 XX  
 XX Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.  
 XX  
 OS Conus aulicus.  
 XX  
 XX WO200044776-A1.  
 PN  
 XX  
 PD 03-AUG-2000.  
 XX  
 XX 28-JAN-2000; 2000WO-US001979.  
 XX  
 XX 29-JAN-1999; 99US-0118381P.  
 XX  
 XX (UTAH ) UNIV UTAH RES FOUND.  
 XX (COGN-) COGNETIX INC.  
 XX  
 XX Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;  
 PI  
 XX WPI; 2000-505965/45.  
 DR N-PSDB; AAA89402.  
 DR  
 XX alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 PT e.g. as neuromuscular blocking agents for use in surgery and for treating  
 PT unipolar depression.  
 PT  
 XX  
 XX Claim 39; Page 32; 229pp; English.  
 PS  
 XX The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.  
 CC These peptides are found in minute quantities in the venom of the snails,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC disorders, urinary incontinence, nicotine addiction, mood disorders such  
 CC as bipolar disorder, unipolar depression, dysthymia and seasonal  
 CC affective disorder, and small cell lung carcinoma  
 XX  
 XX Sequence 56 AA;  
 SQ  
 Query Match 73.5%; Score 75; DB 3; Length 56;  
 Best Local Similarity 68.8%; Pred. No. 0.077;  
 Matches 11; Conservative 1; Mismatches 4; Indels 0; Gaps 0;  
 QY 1 GCCSLPPCALSNPDYC 16  
 DB ||||| :|||  
 40 GCCSYPPCFATNSDYC 55  
 RESULT 14  
 AAB21430  
 ID AAB21430 standard; protein; 56 AA.  
 XX  
 XX AAB21430;  
 AC  
 XX 19-JAN-2001 (first entry)  
 DT  
 XX Cone snail alpha-conotoxin SEQ ID NO: 67.  
 DE  
 XX  
 XX Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.  
 XX

OS Conus textile.  
 XX  
 XX WO200044776-A1.  
 PN  
 XX  
 PD 03-AUG-2000.  
 XX  
 XX 28-JAN-2000; 2000WO-US001979.  
 XX  
 XX 29-JAN-1999; 99US-0118381P.  
 XX  
 XX (UTAH ) UNIV UTAH RES FOUND.  
 XX (COGN-) COGNETIX INC.  
 XX  
 XX Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;  
 PI  
 XX WPI; 2000-505965/45.  
 DR N-PSDB; AAA89405.  
 DR  
 XX alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 PT e.g. as neuromuscular blocking agents for use in surgery and for treating  
 PT unipolar depression.  
 PT  
 XX  
 XX Claim 39; Page 33; 229pp; English.  
 PS  
 XX The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.  
 CC These peptides are found in minute quantities in the venom of the snails,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC disorders, urinary incontinence, nicotine addiction, mood disorders such  
 CC as bipolar disorder, unipolar depression, dysthymia and seasonal  
 CC affective disorder, and small cell lung carcinoma  
 XX  
 XX Sequence 56 AA;  
 SQ  
 Query Match 73.5%; Score 75; DB 3; Length 56;  
 Best Local Similarity 68.8%; Pred. No. 0.077;  
 Matches 11; Conservative 1; Mismatches 4; Indels 0; Gaps 0;  
 QY 1 GCCSLPPCALSNPDYC 16  
 DB ||||| :|||  
 40 GCCSRPPCTANNPDLC 55  
 RESULT 15  
 AAB21463  
 ID AAB21463 standard; protein; 59 AA.  
 XX  
 XX AAB21463;  
 AC  
 XX 19-JAN-2001 (first entry)  
 DT  
 XX Cone snail alpha-conotoxin SEQ ID NO: 133.  
 DE  
 XX  
 XX Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.  
 XX  
 XX Conus dalli.  
 OS  
 XX WO200044776-A1.  
 PN  
 XX  
 PD 03-AUG-2000.  
 XX  
 XX 28-JAN-2000; 2000WO-US001979.  
 XX  
 XX 29-JAN-1999; 99US-0118381P.  
 XX

PA (UTAH ) UNIV UTAH RES FOUND.  
 PA (COGN-) COGNETIX INC.  
 XX  
 PI Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;  
 XX  
 DR WPI; 2000-505965/45.  
 DR N-PSDB; AAA89438.  
 XX  
 PT alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 PT e.g. as neuromuscular blocking agents for use in surgery and for treating  
 PT unipolar depression.  
 XX  
 PS Claim 39; Page 42-43; 229pp; English.  
 XX  
 CC The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.  
 CC These peptides are found in minute quantities in the venom of the snails,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC disorders, urinary incontinence, nicotine addiction, mood disorders such  
 CC as bipolar disorder, unipolar depression, dysthymia and seasonal  
 CC affective disorder, and small cell lung carcinoma  
 XX  
 SQ Sequence 59 AA;

Query Match 73.5%; Score 75; DB 3; Length 59;  
 Best Local Similarity 68.8%; Pred. No. 0.08;  
 Matches 11; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
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 Db 40 GCCSRPPCIANNPDLC 55

Search completed: March 23, 2005, 00:03:08  
 Job time : 51.7492 secs

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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:51:32 ; Search time 12.9373 Seconds  
(without alignments)  
92.321 Million cell updates/sec

Title: US-09-787-082A-22  
Perfect score: 102  
Sequence: 1 GCCSLPPCALSNPDYC 16

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : Issued Patents AA:  
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2: /cgn2\_6/prodata/1/1aa/5B COMB.pep:\*  
3: /cgn2\_6/prodata/1/1aa/6A COMB.pep:\*  
4: /cgn2\_6/prodata/1/1aa/6B COMB.pep:\*  
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6: /cgn2\_6/prodata/1/1aa/backfiles1.pep:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	102	100.0	16	3 US-09-219-446B-12	Sequence 12, Appl
2	99	97.1	16	3 US-09-219-446B-10	Sequence 10, Appl
3	97	95.1	16	3 US-09-219-446B-11	Sequence 11, Appl
4	94	92.2	16	3 US-09-219-446B-9	Sequence 9, Appl
5	90	88.2	56	4 US-09-493-795B-115	Sequence 115, Appl
6	86	84.3	56	4 US-09-493-795B-117	Sequence 117, Appl
7	78	76.5	56	4 US-09-493-795B-358	Sequence 358, Appl
8	75	73.5	16	2 US-08-857-068-2	Sequence 2, Appl
9	75	73.5	16	3 US-09-219-446B-5	Sequence 5, Appl
10	75	73.5	17	3 US-09-219-446B-6	Sequence 6, Appl
11	75	73.5	56	4 US-09-493-795B-61	Sequence 61, Appl
12	75	73.5	56	4 US-09-493-795B-67	Sequence 67, Appl
13	75	73.5	59	4 US-09-493-795B-133	Sequence 133, Appl
14	74	72.5	21	4 US-09-493-795B-368	Sequence 368, Appl
15	74	72.5	56	4 US-09-493-795B-125	Sequence 125, Appl
16	70	68.6	38	4 US-09-493-795B-346	Sequence 346, Appl
17	70	68.6	41	4 US-09-493-795B-334	Sequence 324, Appl
18	70	68.6	60	4 US-09-493-795B-77	Sequence 77, Appl
19	70	68.6	65	1 US-08-137-800-46	Sequence 46, Appl
20	70	68.6	65	1 US-08-477-383-46	Sequence 46, Appl
21	70	68.6	65	1 US-08-487-174-46	Sequence 46, Appl
22	70	68.6	65	1 US-08-480-750-46	Sequence 46, Appl
23	68	66.7	16	2 US-08-857-068-4	Sequence 4, Appl
24	68	66.7	16	3 US-09-219-446B-8	Sequence 8, Appl
25	68	66.7	65	3 US-09-488-793-95	Sequence 95, Appl
26	67	65.7	15	2 US-08-857-068-3	Sequence 3, Appl
27	67	65.7	23	4 US-09-493-795B-274	Sequence 274, Appl

28	67	65.7	58	4 US-09-493-795B-63	Sequence 63, Appl
29	66	64.7	20	4 US-09-493-795B-151	Sequence 151, Appl
30	66	64.7	41	4 US-09-493-795B-394	Sequence 394, Appl
31	65	63.7	41	4 US-09-493-795B-268	Sequence 268, Appl
32	65	63.7	41	4 US-09-493-795B-344	Sequence 344, Appl
33	65	63.7	62	4 US-09-493-795B-87	Sequence 87, Appl
34	64	62.7	61	4 US-09-493-795B-107	Sequence 107, Appl
35	63.5	62.3	41	4 US-09-493-795B-278	Sequence 278, Appl
36	63	61.8	25	4 US-09-493-795B-306	Sequence 306, Appl
37	63	61.8	38	4 US-09-493-795B-282	Sequence 282, Appl
38	63	61.8	57	4 US-09-493-795B-149	Sequence 149, Appl
39	62	60.8	22	4 US-09-493-795B-354	Sequence 354, Appl
40	62	60.8	41	4 US-09-493-795B-276	Sequence 276, Appl
41	62	60.8	63	3 US-09-488-793-97	Sequence 97, Appl
42	61	59.8	24	4 US-09-493-795B-366	Sequence 366, Appl
43	61	59.8	38	4 US-09-493-795B-280	Sequence 280, Appl
44	61	59.8	38	4 US-09-493-795B-338	Sequence 338, Appl
45	61	59.8	39	4 US-09-493-795B-308	Sequence 308, Appl

ALIGNMENTS

RESULT 1  
US-09-219-446B-12  
; Sequence 12, Application US/09219446B  
; Patent No. 6265541  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Luo, Sigun  
; APPLICANT: University of Utah Research Foundation  
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
; FILE REFERENCE: Uses of Alpha-Conotoxins  
; CURRENT APPLICATION NUMBER: US/09/219,446B  
; CURRENT FILING DATE: 1998-12-23  
; PRIOR APPLICATION NUMBER: US 60/080,588  
; PRIOR FILING DATE: 1998-04-03  
; PRIOR APPLICATION NUMBER: US 60/070,153  
; PRIOR FILING DATE: 1997-12-31  
; NUMBER OF SEQ ID NOS: 13  
; SOFTWARE: Patent in Ver. 2.0  
; SEQ ID NO 12  
; LENGTH: 16  
; TYPE: PRT  
; ORGANISM: Conus purpurascens  
US-09-219-446B-12  
Query Match 100.0%; Score 102; DB 3; Length 16;  
Best Local Similarity 100.0%; Pred. No. 3.6e-06;  
Matches 16; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 GCCSLPPCALSNPDYC 16  
Db 1 GCCSLPPCALSNPDYC 16  
RESULT 2  
US-09-219-446B-10  
; Sequence 10, Application US/09219446B  
; Patent No. 6265541  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Luo, Sigun  
; APPLICANT: University of Utah Research Foundation  
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
; FILE REFERENCE: Uses of Alpha-Conotoxins  
; CURRENT APPLICATION NUMBER: US/09/219,446B

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; CURRENT FILING DATE: 1998-12-23
; PRIOR APPLICATION NUMBER: US 60/080,588
; PRIOR FILING DATE: 1998-04-03
; PRIOR APPLICATION NUMBER: US 60/070,153
; PRIOR FILING DATE: 1997-12-31
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 10
; LENGTH: 16
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence: A10L derivative
; OTHER INFORMATION: of C. purpurascens PnIA
US-09-219-446B-10

Query Match          97.1%; Score 99; DB 3; Length 16;
Best Local Similarity 93.8%; Pred. No. 8.3e-06;
Matches 15; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16
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Db 1 GCCSLPPCALSNPDYC 16

RESULT 3
US-09-219-446B-11
; Sequence 11, Application US/09219446B
; Patent No. 6265541
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Yoshikami, Doju
; APPLICANT: Cartier, G. Edward
; APPLICANT: Luo, Siqin
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides
; FILE REFERENCE: Uses of Alpha-Conotoxins
; CURRENT APPLICATION NUMBER: US/09/219,446B
; CURRENT FILING DATE: 1998-12-23
; PRIOR APPLICATION NUMBER: US 60/080,588
; PRIOR FILING DATE: 1998-04-03
; PRIOR APPLICATION NUMBER: US 60/070,153
; PRIOR FILING DATE: 1997-12-31
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 11
; LENGTH: 16
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence: N11S derivative
; OTHER INFORMATION: of C. purpurascens PnIA
US-09-219-446B-11

Query Match          95.1%; Score 97; DB 3; Length 16;
Best Local Similarity 93.8%; Pred. No. 1.4e-05;
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16
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Db 1 GCCSLPPCALSNPDYC 16

RESULT 4
US-09-219-446B-9
; Sequence 9, Application US/09219446B
; Patent No. 6265541
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Yoshikami, Doju
; APPLICANT: Cartier, G. Edward
; APPLICANT: Luo, Siqin
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides
; FILE REFERENCE: Uses of Alpha-Conotoxins
; CURRENT APPLICATION NUMBER: US/09/219,446B
; CURRENT FILING DATE: 1998-12-23
; PRIOR APPLICATION NUMBER: US 60/080,588
; PRIOR FILING DATE: 1998-04-03
; PRIOR APPLICATION NUMBER: US 60/070,153
; PRIOR FILING DATE: 1997-12-31
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 10
; LENGTH: 16
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence: A10L derivative
; OTHER INFORMATION: of C. purpurascens PnIA
US-09-219-446B-10

Query Match          97.1%; Score 99; DB 3; Length 16;
Best Local Similarity 93.8%; Pred. No. 8.3e-06;
Matches 15; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16
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Db 1 GCCSLPPCALSNPDYC 16

RESULT 5
US-09-493-795B-115
; Sequence 115, Application US/09493795B
; Patent No. 6797808
; GENERAL INFORMATION:
; APPLICANT: Watkins, Maren
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: Alpha-Conotoxin Peptides
; FILE REFERENCE: 2314-179.A
; CURRENT APPLICATION NUMBER: US/09/493,795B
; CURRENT FILING DATE: 2000-01-28
; PRIOR APPLICATION NUMBER: US 60/118,381
; PRIOR FILING DATE: 1999-01-29
; NUMBER OF SEQ ID NOS: 404
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 115
; LENGTH: 56
; TYPE: PRT
; ORGANISM: Conus pennaceus
US-09-493-795B-115

Query Match          88.2%; Score 90; DB 4; Length 56;
Best Local Similarity 81.2%; Pred. No. 0.0003;
Matches 13; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16
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Db 40 GCCSLPPCALSNPDYC 55

RESULT 6
US-09-493-795B-117
; Sequence 117, Application US/09493795B
; Patent No. 6797808
; GENERAL INFORMATION:
; APPLICANT: Watkins, Maren
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: Alpha-Conotoxin Peptides
; FILE REFERENCE: 2314-179.A
; CURRENT APPLICATION NUMBER: US/09/493,795B
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; CURRENT FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; PRIOR FILING DATE: 1999-01-29  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 117  
; LENGTH: 56  
; TYPE: PRT  
; ORGANISM: Conus pennaceus  
US-09-493-795B-117

Query Match 84.3%; Score 86; DB 4; Length 56;  
Best Local Similarity 81.2%; Pred. No. 0.00088;  
Matches 13; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
DB 40 GCCSHPPCFLNPDYC 55

RESULT 7  
US-09-493-795B-358  
; Sequence 358, Application US/09493795B  
; Patent No. 6797808  
; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-179.A  
; CURRENT APPLICATION NUMBER: US/09/493,795B  
; CURRENT FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; PRIOR FILING DATE: 1999-01-29  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 358  
; LENGTH: 56  
; TYPE: PRT  
; ORGANISM: Conus obscurus  
US-09-493-795B-358

Query Match 76.5%; Score 78; DB 4; Length 56;  
Best Local Similarity 75.0%; Pred. No. 0.0079;  
Matches 12; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
DB 40 GCCSHPPCAQNNQDYC 55

RESULT 8  
US-08-857-068-2  
; Sequence 2, Application US/08857068  
; Patent No. 5866682  
; GENERAL INFORMATION:  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Luo, Sigin  
; APPLICANT: Olivera, Baldomero M.  
; TITLE OF INVENTION: CONOPEPTIDES AUITA, AUIB AND AUIC  
; NUMBER OF SEQUENCES: 4  
; CORRESPONDENCE ADDRESS:  
; ADDRESS: Venable, Baetjer, Howard & Civiletti  
; STREET: 1201 New York Avenue, Suite 1000  
; CITY: Washington  
; STATE: D.C.  
; COUNTRY: US  
; ZIP: 20005  
; COMPUTER READABLE FORM:

; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.30  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/857,068  
; FILING DATE:  
; CLASSIFICATION: 530  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Ihnen, Jeffrey L.  
; REGISTRATION NUMBER: 28,957  
; REFERENCE/DOCKET NUMBER: 24260-121388  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 202-962-4810  
; TELEFAX: 202-962-8300  
; INFORMATION FOR SEQ ID NO: 2:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 16 amino acids  
; TYPE: amino acid  
; STRANDEDNESS:  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; ORIGINAL SOURCE:  
; ORGANISM: Conus aulicus  
; FEATURE:  
; NAME/KEY: Disulfide-bond  
; LOCATION: 2..8  
; FEATURE:  
; NAME/KEY: Disulfide-bond  
; LOCATION: 3..16  
US-08-857-068-2

Query Match 73.5%; Score 75; DB 2; Length 16;  
Best Local Similarity 68.8%; Pred. No. 0.0058;  
Matches 11; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
DB 1 GCCSYPPCFATNSDYC 16

RESULT 9  
US-09-219-446B-5  
; Sequence 5, Application US/09219446B  
; Patent No. 6265541  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Luo, Sigin  
; APPLICANT: University of Utah Research Foundation  
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
; FILE REFERENCE: Uses of Alpha-Conotoxins  
; CURRENT APPLICATION NUMBER: US/09/219,446B  
; CURRENT FILING DATE: 1998-12-23  
; PRIOR APPLICATION NUMBER: US 60/080,588  
; PRIOR FILING DATE: 1998-04-03  
; PRIOR APPLICATION NUMBER: US 60/070,153  
; PRIOR FILING DATE: 1997-12-31  
; NUMBER OF SEQ ID NOS: 13  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 5  
; LENGTH: 16  
; TYPE: PRT  
; ORGANISM: Conus aulicus  
US-09-219-446B-5

Query Match 73.5%; Score 75; DB 3; Length 16;  
Best Local Similarity 68.8%; Pred. No. 0.0058;  
Matches 11; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16

Db 1 GCCSYPPCFATNSDYC 16  
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RESULT 10  
US-09-219-446B-6  
; Sequence 6, Application US/09219446B  
; Patent No. 6265541  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Luo, Sigin  
; APPLICANT: University of Utah Research Foundation  
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
; FILE REFERENCE: Uses of Alpha-Conotoxins  
; CURRENT APPLICATION NUMBER: US/09/219,446B  
; CURRENT FILING DATE: 1998-12-23  
; PRIOR APPLICATION NUMBER: US 60/080,588  
; PRIOR FILING DATE: 1998-04-03  
; PRIOR APPLICATION NUMBER: US 60/070,153  
; PRIOR FILING DATE: 1997-12-31  
; NUMBER OF SEQ ID NOS: 13  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 6  
; LENGTH: 17  
; TYPE: PRT  
; ORGANISM: Artificial Sequence  
; FEATURE:  
; OTHER INFORMATION: Description of Artificial Sequence:Tyr derivative  
; OTHER INFORMATION: of C. aulicus AUA  
US-09-219-446B-6

Query Match 73.5%; Score 75; DB 3; Length 17;  
Best Local Similarity 68.8%; Pred. No. 0.0061;  
Matches 11; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

Qy 1 GCCSLPPCALSNDYC 16  
Db 2 GCCSYPPCFATNSDYC 17  
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RESULT 11  
US-09-493-795B-61  
; Sequence 61, Application US/09493795B  
; Patent No. 6797808  
; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-179.A  
; CURRENT APPLICATION NUMBER: US/09/493,795B  
; CURRENT FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; PRIOR FILING DATE: 1999-01-29  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 61  
; LENGTH: 56  
; TYPE: PRT  
; ORGANISM: Conus aulicus  
US-09-493-795B-61

Query Match 73.5%; Score 75; DB 4; Length 56;  
Best Local Similarity 68.8%; Pred. No. 0.018;  
Matches 11; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

Qy 1 GCCSLPPCALSNDYC 16  
||||| :|||

Db 40 GCCSYPPCFATNSDYC 55

RESULT 12  
US-09-493-795B-67  
; Sequence 67, Application US/09493795B  
; Patent No. 6797808  
; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-179.A  
; CURRENT APPLICATION NUMBER: US/09/493,795B  
; CURRENT FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; PRIOR FILING DATE: 1999-01-29  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 67  
; LENGTH: 56  
; TYPE: PRT  
; ORGANISM: Conus textile  
US-09-493-795B-67

Query Match 73.5%; Score 75; DB 4; Length 56;  
Best Local Similarity 68.8%; Pred. No. 0.018;  
Matches 11; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

Qy 1 GCCSLPPCALSNDYC 16  
Db 40 GCCSRPPCIANNPDLC 55  
||||| :|||

RESULT 13  
US-09-493-795B-133  
; Sequence 133, Application US/09493795B  
; Patent No. 6797808  
; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-179.A  
; CURRENT APPLICATION NUMBER: US/09/493,795B  
; CURRENT FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; PRIOR FILING DATE: 1999-01-29  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 133  
; LENGTH: 59  
; TYPE: PRT  
; ORGANISM: Conus dalli  
US-09-493-795B-133

Query Match 73.5%; Score 75; DB 4; Length 59;  
Best Local Similarity 68.8%; Pred. No. 0.019;  
Matches 11; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

Qy 1 GCCSLPPCALSNDYC 16  
Db 40 GCCSRPPCIANNPDLC 55  
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RESULT 14  
US-09-493-795B-368  
; Sequence 368, Application US/09493795B  
; Patent No. 6797808



; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-179.A  
; CURRENT APPLICATION NUMBER: US/09/493,795B  
; CURRENT FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; PRIOR FILING DATE: 1999-01-29  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 368  
; LENGTH: 21  
; TYPE: PRT  
; ORGANISM: Conus omaria  
US-09-493-795B-368

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Best Local Similarity 68.8%; Pred. NO. 0.0098;  
Matches 11; Conservative 2; Mismatches 3; Indels 0; Gaps 0;  
QY 1 GCCSLPPCALSNPDYC 16  
DB 5 GCCSDPSCNVPDYC 20

RESULT 15  
US-09-493-795B-125  
; Sequence 125, Application US/09493795B  
; Patent No. 6797808  
; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-179.A  
; CURRENT APPLICATION NUMBER: US/09/493,795B  
; CURRENT FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; PRIOR FILING DATE: 1999-01-29  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 125  
; LENGTH: 56  
; TYPE: PRT  
; ORGANISM: Conus episcopatus  
US-09-493-795B-125

Query Match 72.5%; Score 74; DB 4; Length 56;  
Best Local Similarity 68.8%; Pred. NO. 0.023;  
Matches 11; Conservative 2; Mismatches 3; Indels 0; Gaps 0;  
QY 1 GCCSLPPCALSNPDYC 16  
DB 40 GCCSDPSCNVPDYC 55

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Job time : 12.9373 secs

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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 23:46:47 ; Search time 36.4884 Seconds

(without alignments)  
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Title: US-09-787-082a-22  
Perfect score: 102  
Sequence: 1 GCCSLPPCALSNPDYC 16

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1401741 seqs, 330541175 residues

Total number of hits satisfying chosen parameters: 1401741

Minimum DB seq length: 0  
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Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : Published Applications AA.\*  
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14: /cgn2\_6/ptodata/2/pubpaa/US10B\_PUBCOMB.pep.\*  
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20: /cgn2\_6/ptodata/2/pubpaa/US60\_PUBCOMB.pep.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Match	Length	ID	Description
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2	102	100.0	16	16	US-10-827-369-12
3	99	97.1	16	9	US-09-897-465-10
4	99	97.1	16	16	US-10-827-369-10
5	97	95.1	16	9	US-09-897-465-11
6	97	95.1	16	16	US-10-827-369-11
7	94	92.2	16	9	US-09-897-465-9
8	94	92.2	16	16	US-10-827-369-9
9	90	88.2	56	17	US-10-895-372-115
10	86	84.3	56	17	US-10-895-372-117
11	78	76.5	56	17	US-10-895-372-358
12	75	73.5	16	9	US-09-897-465-5
13	75	73.5	16	16	US-10-827-369-5

14	75	73.5	17	9	US-09-897-465-6	Sequence 6, Appli
15	75	73.5	17	16	US-10-827-369-6	Sequence 6, Appli
16	75	73.5	19	14	US-10-072-602B-604	Sequence 604, App
17	75	73.5	56	17	US-10-895-372-61	Sequence 61, Appl
18	75	73.5	56	17	US-10-895-372-67	Sequence 67, Appl
19	75	73.5	59	17	US-10-895-372-133	Sequence 133, App
20	75	73.5	61	14	US-10-072-602B-406	Sequence 406, App
21	74	72.5	21	17	US-10-895-372-368	Sequence 368, App
22	74	72.5	56	17	US-10-895-372-125	Sequence 125, App
23	70	68.6	38	17	US-10-895-372-346	Sequence 346, App
24	70	68.6	41	17	US-10-895-372-324	Sequence 324, App
25	70	68.6	60	17	US-10-895-372-77	Sequence 77, Appl
26	69	67.6	17	14	US-10-072-602B-609	Sequence 609, App
27	69	67.6	61	14	US-10-072-602B-419	Sequence 419, App
28	68	66.7	16	9	US-09-897-465-8	Sequence 8, Appli
29	68	66.7	16	16	US-10-827-369-8	Sequence 8, Appli
30	68	66.7	65	10	US-09-908-741-95	Sequence 95, Appl
31	67	65.7	23	17	US-10-895-372-274	Sequence 274, App
32	67	65.7	58	17	US-10-895-372-63	Sequence 63, Appl
33	66	64.7	20	17	US-10-895-372-151	Sequence 151, App
34	66	64.7	21	14	US-10-072-602B-611	Sequence 611, App
35	66	64.7	41	17	US-10-895-372-394	Sequence 394, App
36	66	64.7	62	14	US-10-072-602B-425	Sequence 425, App
37	65	63.7	17	14	US-10-072-602B-618	Sequence 618, App
38	65	63.7	41	17	US-10-895-372-268	Sequence 268, App
39	65	63.7	41	17	US-10-895-372-344	Sequence 344, App
40	65	63.7	62	17	US-10-895-372-87	Sequence 87, Appl
41	65	63.7	63	14	US-10-072-602B-446	Sequence 446, App
42	64.5	63.2	17	14	US-10-072-602B-615	Sequence 615, App
43	64.5	63.2	63	14	US-10-072-602B-437	Sequence 437, App
44	64	62.7	61	17	US-10-895-372-107	Sequence 107, App
45	63.5	62.3	41	17	US-10-895-372-278	Sequence 278, App

ALIGNMENTS

RESULT 1  
US-09-897-465-12  
; Sequence 12, Application US/09897465  
; Patent No. US2002022715A1  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Luo, Sign  
; APPLICANT: University of Utah Research Foundation  
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
; FILE REFERENCE: Uses of Alpha-Conotoxins  
; CURRENT APPLICATION NUMBER: US/09/897,465  
; CURRENT FILING DATE: 2001-07-03  
; PRIOR APPLICATION NUMBER: US 60/080,588  
; PRIOR FILING DATE: 1998-04-03  
; PRIOR APPLICATION NUMBER: US 60/070,153  
; PRIOR FILING DATE: 1997-12-31  
; NUMBER OF SEQ ID NOS: 13  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 12  
; TYPE: PRT  
; LENGTH: 16  
; ORGANISM: Conus purpurascens  
US-09-897-465-12

Query Match 100.0%; Score 102; DB 9; Length 16;  
Best Local Similarity 100.0%; Pred. No. 1.9e-06;  
Matches 16; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
| | | | | | | | | | | | | | | |  
Db 1 GCCSLPPCALSNPDYC 16



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; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence: N1LS derivative
; OTHER INFORMATION: of C. purpurascens PnIA
US-09-897-465-11

Query Match          95.1%; Score 97; DB 9; Length 16;
Best Local Similarity 93.8%; Pred. No. 8.1e-06;
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSLPPCAASNPDYC 16
Db 1 GCCSLPPCAASNPDYC 16

RESULT 6
US-10-827-369-11
; Sequence 11, Application US/10827369
; Publication No. US20040192610A1
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Yoshikami, Doju
; APPLICANT: Cartier, G. Edward
; APPLICANT: Luo, Sign
; APPLICANT: University of Utah Research Foundation
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides
; FILE REFERENCE: 2314-278
; CURRENT APPLICATION NUMBER: US/10/827,369
; CURRENT FILING DATE: 2004-04-20
; PRIOR APPLICATION NUMBER: US 09/897,465
; PRIOR FILING DATE: 2001-07-03
; PRIOR APPLICATION NUMBER: US 09/219,446
; PRIOR FILING DATE: 1998-12-23
; PRIOR APPLICATION NUMBER: US 60/080,588
; PRIOR FILING DATE: 1998-04-03
; PRIOR APPLICATION NUMBER: US 60/070,153
; PRIOR FILING DATE: 1997-12-31
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 11
; LENGTH: 16
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence: N1LS derivative
; OTHER INFORMATION: of C. purpurascens PnIA
US-10-827-369-11

Query Match          95.1%; Score 97; DB 16; Length 16;
Best Local Similarity 93.8%; Pred. No. 8.1e-06;
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSLPPCAASNPDYC 16
Db 1 GCCSLPPCAASNPDYC 16

RESULT 7
US-09-897-465-9
; Sequence 9, Application US/09897465
; Patent No. US20020022715A1
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Yoshikami, Doju
; APPLICANT: Cartier, G. Edward
; APPLICANT: Luo, Sign
; APPLICANT: University of Utah Research Foundation
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides
; FILE REFERENCE: Uses of Alpha-Conotoxins
; CURRENT APPLICATION NUMBER: US/09/897,465
; CURRENT FILING DATE: 2001-07-03
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; PRIOR APPLICATION NUMBER: US 60/080,588
; PRIOR FILING DATE: 1998-04-03
; PRIOR APPLICATION NUMBER: US 60/070,153
; PRIOR FILING DATE: 1997-12-31
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 9
; LENGTH: 16
; TYPE: PRT
; ORGANISM: Conus purpurascens
US-09-897-465-9

Query Match          92.2%; Score 94; DB 9; Length 16;
Best Local Similarity 87.5%; Pred. No. 2e-05;
Matches 14; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSLPPCAASNPDYC 16
Db 1 GCCSLPPCAASNPDYC 16

RESULT 8
US-10-827-369-9
; Sequence 9, Application US/10827369
; Publication No. US20040192610A1
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Yoshikami, Doju
; APPLICANT: Cartier, G. Edward
; APPLICANT: Luo, Sign
; APPLICANT: University of Utah Research Foundation
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides
; FILE REFERENCE: 2314-278
; CURRENT APPLICATION NUMBER: US/10/827,369
; CURRENT FILING DATE: 2004-04-20
; PRIOR APPLICATION NUMBER: US 09/897,465
; PRIOR FILING DATE: 2001-07-03
; PRIOR APPLICATION NUMBER: US 09/219,446
; PRIOR FILING DATE: 1998-12-23
; PRIOR APPLICATION NUMBER: US 60/080,588
; PRIOR FILING DATE: 1998-04-03
; PRIOR APPLICATION NUMBER: US 60/070,153
; PRIOR FILING DATE: 1997-12-31
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 9
; LENGTH: 16
; TYPE: PRT
; ORGANISM: Conus purpurascens
US-10-827-369-9

Query Match          92.2%; Score 94; DB 16; Length 16;
Best Local Similarity 87.5%; Pred. No. 2e-05;
Matches 14; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSLPPCAASNPDYC 16
Db 1 GCCSLPPCAASNPDYC 16

RESULT 9
US-10-895-372-115
; Sequence 115, Application US/10895372
; Publication No. US20050032705A1
; GENERAL INFORMATION:
; APPLICANT: Watkins, Maren
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: Alpha-Conotoxin Peptides
; FILE REFERENCE: 2314-286
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; CURRENT APPLICATION NUMBER: US/10/895,372  
 ; CURRENT FILING DATE: 2004-07-21  
 ; PRIOR APPLICATION NUMBER: US 09/493,795  
 ; PRIOR FILING DATE: 2000-01-28  
 ; PRIOR APPLICATION NUMBER: US 60/118,381  
 ; PRIOR FILING DATE: 1999-01-29  
 ; NUMBER OF SEQ ID NOS: 404  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 115  
 ; LENGTH: 56  
 ; TYPE: PRT  
 ; ORGANISM: Conus pennaceus  
 US-10-895-372-115

Query Match 88.2%; Score 90; DB 17; Length 56;  
 Best Local Similarity 81.2%; Pred. No. 0.0002;  
 Matches 13; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
 ||||| :||| :|||  
 Db 40 GCCSHPPCAMNPDYC 55

RESULT 10  
 US-10-895-372-117  
 ; Sequence 117, Application US/10895372  
 ; Publication No. US20050032705A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: Hilliard, David R.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Jones, Robert M.  
 ; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
 ; FILE REFERENCE: 2314-286  
 ; CURRENT APPLICATION NUMBER: US/10/895,372  
 ; CURRENT FILING DATE: 2004-07-21  
 ; PRIOR APPLICATION NUMBER: US 09/493,795  
 ; PRIOR FILING DATE: 2000-01-28  
 ; PRIOR APPLICATION NUMBER: US 60/118,381  
 ; PRIOR FILING DATE: 1999-01-29  
 ; NUMBER OF SEQ ID NOS: 404  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 117  
 ; LENGTH: 56  
 ; TYPE: PRT  
 ; ORGANISM: Conus pennaceus  
 US-10-895-372-117

Query Match 84.3%; Score 86; DB 17; Length 56;  
 Best Local Similarity 81.2%; Pred. No. 0.00064;  
 Matches 13; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
 ||||| :||| :|||  
 Db 40 GCCSHPPCFLNPDYC 55

RESULT 11  
 US-10-895-372-358  
 ; Sequence 358, Application US/10895372  
 ; Publication No. US20050032705A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: Hilliard, David R.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Jones, Robert M.  
 ; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
 ; FILE REFERENCE: 2314-286  
 ; CURRENT APPLICATION NUMBER: US/10/895,372  
 ; CURRENT FILING DATE: 2004-07-21  
 ; PRIOR APPLICATION NUMBER: US 09/493,795

; PRIOR FILING DATE: 2000-01-28  
 ; PRIOR APPLICATION NUMBER: US 60/118,381  
 ; PRIOR FILING DATE: 1999-01-29  
 ; NUMBER OF SEQ ID NOS: 404  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 358  
 ; LENGTH: 56  
 ; TYPE: PRT  
 ; ORGANISM: Conus obscurus  
 US-10-895-372-358

Query Match 76.5%; Score 78; DB 17; Length 56;  
 Best Local Similarity 75.0%; Pred. No. 0.0068;  
 Matches 12; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
 ||||| :||| :|||  
 Db 40 GCCSHPPCAQNNPDYC 55

RESULT 12  
 US-09-897-465-5  
 ; Sequence 5, Application US/09897465  
 ; Patent No. US20020022715A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Yoshikami, Doju  
 ; APPLICANT: Cartier, G. Edward  
 ; APPLICANT: Luo, Siqin  
 ; APPLICANT: University of Utah Research Foundation  
 ; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
 ; FILE REFERENCE: Uses of Alpha-Conotoxins  
 ; CURRENT APPLICATION NUMBER: US/09/897,465  
 ; CURRENT FILING DATE: 2001-07-03  
 ; PRIOR APPLICATION NUMBER: US 60/080,588  
 ; PRIOR FILING DATE: 1998-04-03  
 ; PRIOR APPLICATION NUMBER: US 60/070,153  
 ; PRIOR FILING DATE: 1997-12-31  
 ; NUMBER OF SEQ ID NOS: 13  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 5  
 ; LENGTH: 16  
 ; TYPE: PRT  
 ; ORGANISM: Conus aulicus  
 US-09-897-465-5

Query Match 73.5%; Score 75; DB 9; Length 16;  
 Best Local Similarity 68.8%; Pred. No. 0.0053;  
 Matches 11; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
 ||||| :||| :|||  
 Db 1 GCCSYPPCFATNSDYC 16

RESULT 13  
 US-10-827-369-5  
 ; Sequence 5, Application US/10827369  
 ; Publication No. US20040192610A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Yoshikami, Doju  
 ; APPLICANT: Cartier, G. Edward  
 ; APPLICANT: Luo, Siqin  
 ; APPLICANT: University of Utah Research Foundation  
 ; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
 ; FILE REFERENCE: 2314-278  
 ; CURRENT APPLICATION NUMBER: US/10/827,369  
 ; CURRENT FILING DATE: 2004-04-20  
 ; PRIOR APPLICATION NUMBER: US 09/897,465  
 ; PRIOR FILING DATE: 2001-07-03

; PRIOR APPLICATION NUMBER: US 09/219,446  
; PRIOR FILING DATE: 1998-12-23  
; PRIOR APPLICATION NUMBER: US 60/080,588  
; PRIOR FILING DATE: 1998-04-03  
; PRIOR APPLICATION NUMBER: US 60/070,153  
; PRIOR FILING DATE: 1997-12-31  
; NUMBER OF SEQ ID NOS: 13  
; SOFTWARE: Patentin Ver. 2.0  
; SEQ ID NO 5  
; LENGTH: 16  
; TYPE: PRT  
; ORGANISM: Conus aulicus  
US-10-827-369-5

Query Match 73.5%; Score 75; DB 16; Length 16;  
Best Local Similarity 68.8%; Pred. No. 0.0053;  
Matches 11; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
Db 1 GCCSYPPCFATNSDYC 16

## RESULT 14

US-09-897-465-6  
; Sequence 6, Application US/09897465  
; Patent No. US20020022715A1  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Luo, Siqin  
; APPLICANT: University of Utah Research Foundation  
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
; FILE REFERENCE: Uses of Alpha-Conotoxins  
; CURRENT APPLICATION NUMBER: US/09/897,465  
; CURRENT FILING DATE: 2001-07-03  
; PRIOR APPLICATION NUMBER: US 60/080,588  
; PRIOR FILING DATE: 1998-04-03  
; PRIOR APPLICATION NUMBER: US 60/070,153  
; PRIOR FILING DATE: 1997-12-31  
; NUMBER OF SEQ ID NOS: 13  
; SOFTWARE: Patentin Ver. 2.0  
; SEQ ID NO 6  
; LENGTH: 17  
; TYPE: PRT  
; ORGANISM: Artificial Sequence  
; FEATURE:  
; OTHER INFORMATION: Description of Artificial Sequence: Tyr derivative  
; OTHER INFORMATION: of C. aulicus AulA  
US-09-897-465-6

Query Match 73.5%; Score 75; DB 9; Length 17;  
Best Local Similarity 68.8%; Pred. No. 0.0056;  
Matches 11; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
Db 2 GCCSYPPCFATNSDYC 17

## RESULT 15

US-10-827-369-6  
; Sequence 6, Application US/10827369  
; Publication No. US20040192610A1  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Luo, Siqin  
; APPLICANT: University of Utah Research Foundation

; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-278  
; CURRENT APPLICATION NUMBER: US/10/827,369  
; CURRENT FILING DATE: 2004-04-20  
; PRIOR APPLICATION NUMBER: US 09/897,465  
; PRIOR FILING DATE: 2001-07-03  
; PRIOR APPLICATION NUMBER: US 09/219,446  
; PRIOR FILING DATE: 1998-12-23  
; PRIOR APPLICATION NUMBER: US 60/080,588  
; PRIOR FILING DATE: 1998-04-03  
; PRIOR APPLICATION NUMBER: US 60/070,153  
; PRIOR FILING DATE: 1997-12-31  
; NUMBER OF SEQ ID NOS: 13  
; SOFTWARE: Patentin Ver. 2.0  
; SEQ ID NO 6  
; LENGTH: 17  
; TYPE: PRT  
; ORGANISM: Artificial Sequence  
; FEATURE:  
; OTHER INFORMATION: Description of Artificial Sequence: Tyr derivative  
; OTHER INFORMATION: of C. aulicus AulA  
US-10-827-369-6

Query Match 73.5%; Score 75; DB 16; Length 17;  
Best Local Similarity 68.8%; Pred. No. 0.0056;  
Matches 11; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
Db 2 GCCSYPPCFATNSDYC 17

Search completed: March 23, 2005, 00:35:05  
Job time : 36.5599 secs

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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:16:20 ; Search time 8.9769 Seconds  
(without alignments)  
171.492 Million cell updates/sec

Title: US-09-787-082A-22  
Perfect score: 102  
Sequence: 1 GCCSLPPCALSNPDYC 16  
Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues  
Total number of hits satisfying chosen parameters: 283416  
Minimum DB seq length: 0  
Maximum DB seq length: 2000000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries  
Database : PIR 79:\*  
1: piri:\*  
2: pir2:\*  
3: pir3:\*  
4: pir4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	102	100.0	16	2 B54877	alpha-conotoxin Pn
2	94	92.2	16	2 A54877	alpha-conotoxin Pn
3	75	73.5	16	2 A59045	alpha-conotoxin Au
4	74	72.5	16	2 A59042	alpha-conotoxin Ep
5	68	66.7	16	2 C59045	alpha-conotoxin Au
6	59	57.8	15	2 B59045	alpha-conotoxin Au
7	58	56.9	149	1 B69073	NADP-reducing hydr
8	56	54.9	175	2 T36798	probable transcrip
9	54	52.9	386	2 A12152	hypothetical prote
10	53	52.0	18	1 A58589	alpha-conotoxin EI
11	53	52.0	260	2 T23033	hypothetical prote
12	50	49.0	16	2 A59046	alpha-conotoxin MI
13	50	49.0	196	1 S38624	metalloproteinase
14	50	49.0	220	1 A35996	metalloproteinase
15	50	49.0	220	1 A37128	metalloproteinase
16	50	49.0	220	1 JH0683	metalloproteinase
17	50	49.0	220	1 S45683	metalloproteinase
18	50	49.0	220	2 I53415	tissue inhibitor o
19	49	48.0	250	2 T16342	hypothetical prote
20	48	47.1	388	2 T43019	probable DNA-bind
21	46	45.1	148	2 B82503	boxR protein VCA00
22	46	45.1	1042	2 A57534	mucin SAC (clone L
23	46	45.1	1101	2 T16840	hypothetical prote
24	45	44.1	67	1 T1ILF2	trypsin inhibitor
25	45	44.1	67	1 T1ILF2	trypsin inhibitor
26	45	44.1	113	2 S56647	trypsin inhibitor
27	45	44.1	113	2 S56648	trypsin inhibitor
28	45	44.1	151	2 AE3038	transcription regu
29	45	44.1	177	2 F98247	hypothetical prote

30	45	44.1	344	2	C71318	conserved hypothet
31	45	44.1	1034	2	JCS598	mucin - rat
32	44.5	43.6	1620	2	T27283	hypothetical prote
33	44	43.1	156	2	B83361	probable transcrip
34	44	43.1	179	2	T19557	hypothetical prote
35	44	43.1	324	2	P22848	hypothetical ORF-4
36	44	43.1	490	2	T43745	clr4 protein - fis
37	44	43.1	490	2	T43700	mating-type loci a
38	44	43.1	1097	2	T40678	hypothetical prote
39	44	43.1	1736	2	T00391	hypothetical prote
40	44	43.1	2761	2	T29285	hypothetical prote
41	43.5	42.6	354	2	T04262	mitogen-activated
42	43	42.2	47	2	F81118	hypothetical prote
43	43	42.2	76	2	T20974	hypothetical prote
44	43	42.2	110	1	TISYO	proteinase inhibit
45	43	42.2	194	2	JC7292	flavoredoxin FLR (

ALIGNMENTS

RESULT 1

B54877  
alpha-conotoxin PnIB - cone shell (Conus pennaceus)  
C;Species: Conus pennaceus  
C;Date: 19-Mar-1997 #sequence\_revision 25-Apr-1997 #text\_change 09-Jul-2004  
C;Accession: B54877  
R;Painzilber, M.; Hasson, A.; Oren, R.; Burlingame, A.L.; Gordon, D.; Spira, M.E.; Zlotki  
Biochemistry 33, 9523-9529, 1994  
A;Title: New mollusc-specific alpha-conotoxins block Aplysia neuronal acetylcholine rece  
A;Reference number: A54877; MUID:94347719; PMID:8068627  
A;Accession: B54877  
A;Molecule type: protein  
A;Residues: 1-16 <FAI>  
A;Cross-references: UNIPROT:P50985  
C;Comment: This alpha-conotoxin, as an acetylcholine receptor inhibitor, is a postsynapt  
C;Superfamily: alpha-conotoxin  
C;Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neuro  
F;2-8,3-16/Disulfide bonds: #status experimental  
F;16/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 100.0%; Score 102; DB 2; Length 16;  
Best Local Similarity 100.0%; Pred. No. 1.5e-07;  
Matches 16; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCCSLPPCALSNPDYC 16  
|||||  
Db 1 GCCSLPPCALSNPDYC 16

RESULT 2

A54877  
alpha-conotoxin PnIA [validated] - cone shell (Conus pennaceus)  
N;Alternate names: alpha-CTX-PnIA  
C;Species: Conus pennaceus  
C;Date: 19-Mar-1997 #sequence\_revision 25-Apr-1997 #text\_change 09-Jul-2004  
C;Accession: A54877  
R;Painzilber, M.; Hasson, A.; Oren, R.; Burlingame, A.L.; Gordon, D.; Spira, M.E.; Zlotki  
Biochemistry 33, 9523-9529, 1994  
A;Title: New mollusc-specific alpha-conotoxins block Aplysia neuronal acetylcholine rece  
A;Reference number: A54877; MUID:94347719; PMID:8068627  
A;Accession: A54877  
A;Molecule type: protein  
A;Residues: 1-16 <FAI>  
A;Cross-references: UNIPROT:P50984  
R;Hu, S.H.; Gehrmann, J.; Guddat, L.W.; Alewood, P.F.; Craik, D.J.; Martin, J.L.  
submitted to the Brookhaven Protein Data Bank, January 1996  
A;Reference number: A66355; PDB:IPEN  
A;Contents: annotation; X-ray crystallography, 1.1 angstroms; residues 1-16  
C;Comment: This alpha-conotoxin, as an acetylcholine receptor inhibitor, is a postsynapt  
C;Superfamily: alpha-conotoxin  
C;Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neuro  
F;2-8,3-16/Disulfide bonds: #status experimental

F;16/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 92.2%; Score 94; DB 2; Length 16;  
Best Local Similarity 87.5%; Pred. No. 1.7e-06;  
Matches 14; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
||||| : |||||  
DB 1 GCCSLPPCAANNPDYC 16

## RESULT 3

A59045  
alpha-conotoxin AuiA - cone shell (Conus aulicus)  
C/Species: Conus aulicus (court cone)  
C/Date: 23-Jul-1999 #sequence\_revision 23-Jul-1999 #text\_change 09-Jul-2004  
C/Accession: A59045  
R/Luo, S.; Kulak, J.M.; Cartier, G.E.; Jacobsen, R.B.; Yoshikami, D.; Olivera, B.M.; McIlr  
J. Neurosci. 18, 8571-8579, 1998  
A/Title: Alpha-conotoxin AuiB selectively blocks alpha3beta4 nicotinic acetylcholine rec  
F;2-8,3-16/Disulfide bonds: #status experimental  
A/Reference number: A59045; MUID:99003392; PMID:9786965  
A/Accession: A59045  
A/Status: preliminary  
A/Molecule type: protein  
A/Residues: 1-16 <LUO>  
A/Cross-references: UNIPROT:P56639  
C/Superfamily: alpha-conotoxin  
C/Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neuro  
F;1-16/Product: alpha-conotoxin AuiA #status experimental <MAT>  
F;2-8,3-16/Disulfide bonds: #status experimental  
F;16/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 73.5%; Score 75; DB 2; Length 16;  
Best Local Similarity 68.8%; Pred. No. 0.0006;  
Matches 11; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
||||| : |||||  
DB 1 GCCSYPPCFATNSDYC 16

## RESULT 4

A59042  
alpha-conotoxin Epi - cone shell (Conus episcopatus)  
C/Species: Conus episcopatus (bishop's cone)  
C/Date: 23-Jul-1999 #sequence\_revision 23-Jul-1999 #text\_change 09-Jul-2004  
C/Accession: A59042  
R/Loughnan, M.; Bond, T.; Atkins, A.; Cuevas, J.; Adams, D.J.; Broxton, N.M.; Livett, B.  
J. Biol. Chem. 273, 15667-15674, 1998  
A/Title: Alpha-conotoxin Epi, a novel sulfated peptide from Conus episcopatus that sele  
A/Reference number: A59042; MUID:98288307; PMID:9624161  
A/Accession: A59042  
A/Status: preliminary  
A/Molecule type: protein  
A/Residues: 1-16 <LOU>  
A/Cross-references: UNIPROT:P56638  
C/Superfamily: alpha-conotoxin  
C/Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neuro  
F;1-16/Product: alpha-conotoxin Epi #status experimental <MAT>  
F;2-8,3-16/Disulfide bonds: #status experimental  
F;15/Binding site: sulfate (Tyr) (covalent) #status experimental  
F;16/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 72.5%; Score 74; DB 2; Length 16;  
Best Local Similarity 68.8%; Pred. No. 0.00081;  
Matches 11; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
||||| : |||||  
DB 1 GCCSDPRCNWNPDYC 16

## RESULT 5

## C59045

alpha-conotoxin AuiC - cone shell (Conus aulicus)  
C/Species: Conus aulicus (court cone)  
C/Date: 23-Jul-1999 #sequence\_revision 23-Jul-1999 #text\_change 09-Jul-2004  
C/Accession: C59045  
R/Luo, S.; Kulak, J.M.; Cartier, G.E.; Jacobsen, R.B.; Yoshikami, D.; Olivera, B.M.; McIlr  
J. Neurosci. 18, 8571-8579, 1998  
A/Title: Alpha-conotoxin AuiB selectively blocks alpha3beta4 nicotinic acetylcholine rec  
A/Reference number: A59045; MUID:99003392; PMID:9786965  
A/Accession: C59045  
A/Status: preliminary  
A/Molecule type: protein  
A/Residues: 1-16 <LUO>  
A/Cross-references: UNIPROT:P56641  
C/Superfamily: alpha-conotoxin  
C/Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neuro  
F;1-16/Product: alpha-conotoxin AuiC #status experimental <MAT>  
F;2-8,3-16/Disulfide bonds: #status experimental  
F;16/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 66.7%; Score 68; DB 2; Length 16;  
Best Local Similarity 62.5%; Pred. No. 0.0051;  
Matches 10; Conservative 1; Mismatches 5; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
||||| : |||||  
DB 1 GCCSYPPCFATNSGYC 16

## RESULT 6

B59045  
alpha-conotoxin AuiB - cone shell (Conus aulicus)  
C/Species: Conus aulicus (court cone)  
C/Date: 23-Jul-1999 #sequence\_revision 23-Jul-1999 #text\_change 23-Jul-1999  
C/Accession: B59045  
R/Luo, S.; Kulak, J.M.; Cartier, G.E.; Jacobsen, R.B.; Yoshikami, D.; Olivera, B.M.; McIlr  
J. Neurosci. 18, 8571-8579, 1998  
A/Title: Alpha-conotoxin AuiB selectively blocks alpha3beta4 nicotinic acetylcholine rec  
A/Reference number: A59045; MUID:99003392; PMID:9786965  
A/Accession: B59045  
A/Status: preliminary  
A/Molecule type: protein  
A/Residues: 1-15 <LUO>  
C/Superfamily: alpha-conotoxin  
C/Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neuro  
F;1-15/Product: alpha-conotoxin AuiB #status experimental <MAT>  
F;2-8,3-15/Disulfide bonds: #status experimental  
F;15/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 57.8%; Score 59; DB 2; Length 15;  
Best Local Similarity 64.3%; Pred. No. 0.078;  
Matches 9; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPD 14  
||||| : |||||  
DB 1 GCCSYPPCFATNSD 14

## RESULT 7

E69073  
NADP-reducing hydrogenase (EC 1.-.-.-) chain A - Methanobacterium thermoautotrophicum (st  
C/Species: Methanobacterium thermoautotrophicum  
C/Date: 14-May-1999 #sequence\_revision 14-May-1999 #text\_change 09-Jul-2004  
C/Accession: E69073  
R/Smith, D.R.; Doucette-Stamm, L.A.; Deloughery, C.; Lee, H.; Dubois, J.; Aldredge, T.; F  
; Qiu, D.; Spadafora, R.; Vicaire, R.; Wang, Y.; Wierzbowski, J.; Gibson, R.; Jiواني, N.;  
ki, S.; Church, G.M.; Daniels, C.J.; Mao, J.; Rice, P.; Noelling, J.; Reeve, J.N.  
J. Bacteriol. 179, 7135-7155, 1997  
A/Title: Complete genome sequence of Methanobacterium thermoautotrophicum Delta H: funct  
A/Reference number: A69000; MUID:98037514; PMID:9371463  
A/Accession: E69073  
A/Status: preliminary; nucleic acid sequence not shown; translation not shown  
A/Molecule type: DNA

A;Residues: 1-149 <MTH>  
A;Cross-references: UNIPROT:O27591; GB:AE000915; GB:AE000666; NID:G2622664; PIDN:AA88602  
A;Experimental source: strain Delta H  
C;Genetics:  
A;Gene: MTH1548  
C;Superfamily: NADH dehydrogenase (ubiquinone) I chain E; NADH dehydrogenase (ubiquinone)  
C;Keywords: 2Fe-2S; iron-sulfur protein; metalloprotein; NADP; oxidoreductase  
F;9-148/Domain: NADH dehydrogenase (ubiquinone) I chain E homology <NUOE>  
F;75,80,116,120/Binding site: 2Fe-2S cluster (Cys) (covalent) #status predicted

Query Match 56.9%; Score 58; DB 1; Length 149;  
Best Local Similarity 64.3%; Pred. No. 0.67;  
Matches 9; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPD 14  
|||||  
DB 118 GCCSLAPCAMVND 131

RESULT 8  
T36798  
probable transcription regulator soxR-like - Streptomyces coelicolor  
C;Species: Streptomyces coelicolor  
C;Date: 03-Dec-1999 #sequence\_revision 03-Dec-1999 #text\_change 09-Jul-2004  
C;Accession: T36798  
R;Oliver, K.; Harris, D.; Bentley, S.D.; Parkhill, J.; Barrell, B.G.; Rajandream, M.A.  
submitted to the EMBL Data Library, July 1999  
A;Reference number: Z21614  
A;Accession: T36798  
A;Status: preliminary; translated from GB/EMBL/DBDJ  
A;Molecule type: DNA  
A;Residues: 1-175 <OLI>  
A;Cross-references: UNIPROT:Q9S255; EMBL:AL096811; PIDN:CAB46795.1; GSPDB:GN000070; SCORE  
A;Experimental source: strain A3(2)  
C;Genetics:  
A;Gene: SCO2DB:SCI30A.18c

Query Match 54.9%; Score 56; DB 2; Length 175;  
Best Local Similarity 71.4%; Pred. No. 1.4;  
Matches 10; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPD 14  
|||||  
DB 122 GCLSLFVCVLSNPD 135

RESULT 9  
AI2152  
hypothetical protein all2776 [imported] - Nostoc sp. (strain PCC 7120)  
C;Species: Nostoc sp. PCC 7120  
A;Note: Nostoc sp. strain PCC 7120 is a synonym of Anabaena sp. strain PCC 7120  
C;Date: 14-Dec-2001 #sequence\_revision 14-Dec-2001 #text\_change 16-Aug-2004  
C;Accession: AI2152  
R;Kaneko, T.; Nakamura, Y.; Wolk, C.P.; Kuritz, T.; Sasamoto, S.; Watanabe, A.; Iriguchi,  
Nakazaki, N.; Shimpo, S.; Sugimoto, M.; Takazawa, M.; Yamada, M.; Yasuda, M.; Tabata, S.  
DNA Res. 8, 205-213, 2001  
A;Title: Complete Genomic Sequence of the Filamentous Nitrogen-fixing Cyanobacterium Ana  
A;Reference number: AB1807; MUID:21595285; PMID:11759840  
A;Accession: AI2152  
A;Status: preliminary  
A;Molecule type: DNA  
A;Residues: 1-386 <KUR>  
A;Cross-references: UNIPROT:Q8YTE3; GB:BA000019; PIDN:BA874475.1; PID:gl7131869; GSPDB:G  
A;Experimental source: strain PCC 7120  
C;Genetics:  
A;Gene: all2776  
C;Superfamily: Sarcosine oxidase

Query Match 52.9%; Score 54; DB 2; Length 386;  
Best Local Similarity 57.1%; Pred. No. 5;  
Matches 8; Conservative 3; Mismatches 3; Indels 0; Gaps 0;

QY 3 CSLPPCALSNPDYC 16

Db 108 CAVPPCLLSVPEAC 121  
:::|||||:|  
RESULT 10  
A58589  
alpha-conotoxin EI - cone shell (Conus ermineus)  
C;Species: Conus ermineus (ermine cone)  
C;Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change 09-Jul-2004  
C;Accession: A58589  
R;Martinez, J.S.; Olivera, B.M.; Gray, W.R.; Craig, A.G.; Groebe, D.R.; Abramson, S.N.;  
Biochemistry 34, 14519-14526, 1995  
A;Title: alpha-Conotoxin EI, a new nicotinic acetylcholine receptor antagonist with nove  
A;Reference number: A58589; MUID:96062516; PMID:7578057  
A;Accession: A58589  
A;Molecule type: protein  
A;Residues: 1-18 <MAR>  
A;Cross-references: UNIPROT:P50982  
A;Note: sequence confirmed by chemical synthesis  
C;Comment: This alpha-conotoxin, as an acetylcholine receptor inhibitor, is a postsynapt  
C;Superfamily: alpha-conotoxin  
C;Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; hydroxyproline; pos  
F;3/Modified site: 4-hydroxyproline (Pro) #status experimental  
F;4-10,5-18/disulfide bonds: #status experimental  
F;18/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 52.0%; Score 53; DB 1; Length 18;  
Best Local Similarity 53.3%; Pred. No. 0.57;  
Matches 8; Conservative 1; Mismatches 6; Indels 0; Gaps 0;

QY 2 CCSLPPCALSNPDYC 16  
|||||  
DB 4 CCYHPTCNMSNPQIC 18

RESULT 11  
T23033  
hypothetical protein H02K04.1 - Caenorhabditis elegans  
C;Species: Caenorhabditis elegans  
C;Date: 15-Oct-1999 #sequence\_revision 15-Oct-1999 #text\_change 09-Jul-2004  
C;Accession: T23033; T27666  
R;White, S.  
submitted to the EMBL Data Library, June 1998  
A;Reference number: Z19657  
A;Accession: T23033  
A;Status: preliminary; translated from GB/EMBL/DBDJ  
A;Molecule type: DNA  
A;Residues: 1-260 <WIL>  
A;Cross-references: UNIPROT:O45993; EMBL:AL023813; PIDN:CAA19425.1; GSPDB:GN000023; CESP:  
A;Experimental source: clone H02K04  
R;Basham, V.  
submitted to the EMBL Data Library, October 1996  
A;Reference number: Z20401  
A;Accession: T27666  
A;Status: preliminary; translated from GB/EMBL/DBDJ  
A;Molecule type: DNA  
A;Residues: 1-260 <WIL>  
A;Cross-references: EMBL:Z81142; PIDN:CAB03511.1; GSPDB:GN000023; CESP:H02K04.1  
A;Experimental source: clone ZK1037  
C;Genetics:  
A;Gene: CESP:H02K04.1  
A;Map position: 5  
A;Introns: 22/3; 81/1; 112/3; 173/1; 204/3

Query Match 52.0%; Score 53; DB 2; Length 260;  
Best Local Similarity 50.0%; Pred. No. 4.9;  
Matches 7; Conservative 4; Mismatches 3; Indels 0; Gaps 0;

QY 3 CSLPPCALSNPDYC 16  
|||||  
DB 102 CAAPPCAVTDPVVC 115

## RESULT 12

A59046  
 A;Molecule type: mRNA  
 A;Residues: 1-220 <BOO>  
 A;Cross-references: UNIPROT:P16368; GB:M32303; NID:G163341; PIDN:AAA30636.1; PID:G163342  
 C;Species: Conus magus (magus cone)  
 C;Date: 16-Jul-1999 #sequence\_revision 16-Jul-1999 #text\_change 09-Jul-2004  
 C;Accession: A59046  
 R;Cartier, G.E.; Yoshikami, D.; Gray, W.R.; Luo, S.; Olivera, B.M.; McIntosh, J.M.  
 J. Biol. Chem. 271, 7522-7528, 1996  
 A;Title: A new alpha-conotoxin which targets alpha3beta2 nicotinic acetylcholine receptors  
 A;Reference number: A59046; MUID:96205934; PMID:8631783

A;Accession: A59046  
 A;Status: preliminary  
 A;Molecule type: protein  
 A;Residues: 1-16 <CAR>  
 A;Cross-references: UNIPROT:P56636  
 C;Superfamily: alpha-conotoxin  
 C;Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neurotoxin  
 F;1-16/Product: alpha-conotoxin MII #status experimental <MAT>  
 F;2-8,3-16/Disulfide bonds: #status experimental  
 F;16/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 49.0%; Score 50; DB 2; Length 16;  
 Best Local Similarity 50.0%; Pred. No. 1.3;  
 Matches 8; Conservative 2; Mismatches 6; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16

DB 1 GCCSNPVCHEHSLC 16

## RESULT 13

S38624  
 A;Molecule type: mRNA  
 A;Residues: 1-196 <SUZ>  
 A;Cross-references: UNIPROT:Q60453; EMBL:X75924; NID:G414876; PIDN:CAA53528.1; PID:G414876  
 C;Function: regulation of extracellular matrix remodeling by inhibition of matrix metalloproteinase inhibitor 2 precursor - long-tailed hamster (fragment)  
 N;Alternate names: TIMP-2; tissue inhibitor of metalloproteinases 2  
 C;Species: Cricetus longicaudatus (long-tailed hamster)  
 C;Date: 06-Jan-1995 #sequence\_revision 12-Apr-1996 #text\_change 09-Jul-2004  
 C;Accession: S38624

R;Suzuki, Y.  
 submitted to the EMBL Data Library, November 1993

A;Reference number: S38624

A;Accession: S38624

A;Molecule type: mRNA

A;Residues: 1-196 <SUZ>

A;Cross-references: UNIPROT:Q60453; EMBL:X75924; NID:G414876; PIDN:CAA53528.1; PID:G414876  
 C;Function: regulation of extracellular matrix remodeling by inhibition of matrix metalloproteinase inhibitor 2 precursor - long-tailed hamster (fragment)  
 N;Alternate names: TIMP-2; tissue inhibitor of metalloproteinases 2  
 C;Species: Cricetus longicaudatus (long-tailed hamster)  
 C;Date: 06-Jan-1995 #sequence\_revision 12-Apr-1996 #text\_change 09-Jul-2004  
 C;Accession: S38624

R;Suzuki, Y.  
 submitted to the EMBL Data Library, November 1993

A;Reference number: S38624

A;Accession: S38624

A;Molecule type: mRNA

A;Residues: 1-196 <SUZ>

A;Cross-references: UNIPROT:Q60453; EMBL:X75924; NID:G414876; PIDN:CAA53528.1; PID:G414876  
 C;Function: regulation of extracellular matrix remodeling by inhibition of matrix metalloproteinase inhibitor 2 precursor - long-tailed hamster (fragment)  
 N;Alternate names: TIMP-2; tissue inhibitor of metalloproteinases 2  
 C;Species: Cricetus longicaudatus (long-tailed hamster)  
 C;Date: 06-Jan-1995 #sequence\_revision 12-Apr-1996 #text\_change 09-Jul-2004  
 C;Accession: S38624

R;Suzuki, Y.  
 submitted to the EMBL Data Library, November 1993

A;Reference number: S38624

A;Accession: S38624

A;Molecule type: mRNA

A;Residues: 1-196 <SUZ>

A;Cross-references: UNIPROT:Q60453; EMBL:X75924; NID:G414876; PIDN:CAA53528.1; PID:G414876  
 C;Function: regulation of extracellular matrix remodeling by inhibition of matrix metalloproteinase inhibitor 2 precursor - long-tailed hamster (fragment)  
 N;Alternate names: TIMP-2; tissue inhibitor of metalloproteinases 2  
 C;Species: Cricetus longicaudatus (long-tailed hamster)  
 C;Date: 06-Jan-1995 #sequence\_revision 12-Apr-1996 #text\_change 09-Jul-2004  
 C;Accession: S38624

R;Suzuki, Y.  
 submitted to the EMBL Data Library, November 1993

A;Reference number: S38624

A;Accession: S38624

A;Molecule type: mRNA

A;Residues: 1-196 <SUZ>

## A;Molecule type: mRNA

A;Residues: 1-220 <BOO>  
 A;Cross-references: UNIPROT:P16368; GB:M32303; NID:G163341; PIDN:AAA30636.1; PID:G163342  
 A;Experimental source: aortic endothelial CDNA library  
 R;De Clerck, Y.A.; Yean, T.D.; Ratzkin, B.J.; Lu, H.S.; Langley, K.E.  
 J. Biol. Chem. 264, 17445-17453, 1989  
 A;Title: Purification and characterization of two related but distinct metalloproteinase  
 A;Reference number: A34468; MUID:90008914; PMID:2551903

A;Accession: A34468

A;Molecule type: protein

A;Residues: 27-71 <DEC>

A;Experimental source: culture medium of aortic endothelial cells

R;Murray, J.B.; Allison, K.; Sudhalter, J.; Langer, R.

J. Biol. Chem. 261, 4154-4159, 1986

A;Title: Purification and partial amino acid sequence of a bovine cartilage-derived collagenase

A;Reference number: A25322; MUID:86140235; PMID:3005321

A;Accession: A25322

A;Molecule type: protein

A;Residues: 27-41, 'C', 43-55, 'EX', 58-59, 'X', 61-66, 'XS', 69-71 <MUR>

A;Experimental source: cartilage

R;DeClerck, Y.A.; Yean, T.D.; Lee, Y.; Tomich, J.M.; Langley, K.E.

Biochem. J. 289, 65-69, 1993

A;Title: Characterization of the functional domain of tissue inhibitor of metalloproteinase

A;Reference number: S28151; MUID:93143691; PMID:8424773

A;Accession: S28151

A;Molecule type: protein

A;Residues: 27-41, 'C', 43-55, 'EX', 58-59, 'X', 61-66, 'XS', 69-71 <MUR>

A;Experimental source: cartilage

R;DeClerck, Y.A.; Yean, T.D.; Lee, Y.; Tomich, J.M.; Langley, K.E.

Biochem. J. 289, 65-69, 1993

A;Title: Characterization of the functional domain of tissue inhibitor of metalloproteinase

A;Reference number: S28151; MUID:93143691; PMID:8424773

A;Accession: S28151

A;Molecule type: protein

A;Residues: 27-41, 'C', 43-55, 'EX', 58-59, 'X', 61-66, 'XS', 69-71 <MUR>

A;Experimental source: cartilage

R;DeClerck, Y.A.; Yean, T.D.; Lee, Y.; Tomich, J.M.; Langley, K.E.

Biochem. J. 289, 65-69, 1993

A;Title: Characterization of the functional domain of tissue inhibitor of metalloproteinase

A;Reference number: S28151; MUID:93143691; PMID:8424773

A;Accession: S28151

A;Molecule type: protein

A;Residues: 27-41, 'C', 43-55, 'EX', 58-59, 'X', 61-66, 'XS', 69-71 <MUR>

A;Experimental source: cartilage

R;DeClerck, Y.A.; Yean, T.D.; Lee, Y.; Tomich, J.M.; Langley, K.E.

Biochem. J. 289, 65-69, 1993

A;Title: Characterization of the functional domain of tissue inhibitor of metalloproteinase

A;Reference number: S28151; MUID:93143691; PMID:8424773

A;Accession: S28151

A;Molecule type: protein

A;Residues: 27-41, 'C', 43-55, 'EX', 58-59, 'X', 61-66, 'XS', 69-71 <MUR>

A;Experimental source: cartilage

R;DeClerck, Y.A.; Yean, T.D.; Lee, Y.; Tomich, J.M.; Langley, K.E.

Biochem. J. 289, 65-69, 1993

A;Title: Characterization of the functional domain of tissue inhibitor of metalloproteinase

A;Reference number: S28151; MUID:93143691; PMID:8424773

A;Accession: S28151

A;Molecule type: protein

A;Residues: 27-41, 'C', 43-55, 'EX', 58-59, 'X', 61-66, 'XS', 69-71 <MUR>

A;Experimental source: cartilage

R;DeClerck, Y.A.; Yean, T.D.; Lee, Y.; Tomich, J.M.; Langley, K.E.

Biochem. J. 289, 65-69, 1993

A;Title: Characterization of the functional domain of tissue inhibitor of metalloproteinase

A;Reference number: S28151; MUID:93143691; PMID:8424773

A;Accession: S28151

A;Molecule type: protein

A;Residues: 27-41, 'C', 43-55, 'EX', 58-59, 'X', 61-66, 'XS', 69-71 <MUR>

A;Experimental source: cartilage

R;DeClerck, Y.A.; Yean, T.D.; Lee, Y.; Tomich, J.M.; Langley, K.E.

Biochem. J. 289, 65-69, 1993

A;Title: Characterization of the functional domain of tissue inhibitor of metalloproteinase

A;Reference number: S28151; MUID:93143691; PMID:8424773

A;Accession: S28151

## RESULT 15

A37128  
 A;Molecule type: mRNA  
 A;Residues: 1-220 <STE>  
 A;Cross-references: UNIPROT:P16035; GB:J05593; NID:G339706; PIDN:AAA61186.1; PID:G339707  
 A;Experimental source: A2058 melanoma cell CDNA library  
 R;Boone, T.C.; Johnson, M.J.; De Clerck, Y.A.; Langley, K.E.  
 Proc. Natl. Acad. Sci. U.S.A. 87, 2800-2804, 1990  
 A;Title: cDNA cloning and expression of a metalloproteinase inhibitor related to tissue inhibitor of metalloproteinase  
 A;Reference number: A37128; MUID:90338014; PMID:2380196

A;Accession: A37128

A;Molecule type: mRNA

A;Residues: 1-220 <STE>

A;Cross-references: UNIPROT:P16035; GB:J05593; NID:G339706; PIDN:AAA61186.1; PID:G339707

A;Experimental source: A2058 melanoma cell CDNA library

R;Boone, T.C.; Johnson, M.J.; De Clerck, Y.A.; Langley, K.E.

Proc. Natl. Acad. Sci. U.S.A. 87, 2800-2804, 1990

A;Title: cDNA cloning and expression of a metalloproteinase inhibitor related to tissue inhibitor of metalloproteinase

A;Reference number: A37128; MUID:90338014; PMID:2380196

A;Accession: A37128

A;Molecule type: mRNA

A;Residues: 1-220 <STE>

A;Cross-references: UNIPROT:P16035; GB:J05593; NID:G339706; PIDN:AAA61186.1; PID:G339707

A;Experimental source: A2058 melanoma cell CDNA library

R;Boone, T.C.; Johnson, M.J.; De Clerck, Y.A.; Langley, K.E.

Proc. Natl. Acad. Sci. U.S.A. 87, 2800-2804, 1990

A;Title: cDNA cloning and expression of a metalloproteinase inhibitor related to tissue inhibitor of metalloproteinase

A;Reference number: A37128; MUID:90338014; PMID:2380196

A;Accession: A37128

A;Molecule type: mRNA

A;Residues: 1-220 <STE>

A;Cross-references: UNIPROT:P16035; GB:J05593; NID:G339706; PIDN:AAA61186.1; PID:G339707

A;Experimental source: A2058 melanoma cell CDNA library

QY 1 GC-----CSLPPCALSNPDYC 16

DB 151 GCECKITRCMPICYSPPDEC 172

Matches 9; Conservative 3; Mismatches 4; Indels 6; Gaps 1;

Query Match 49.0%; Score 50; DB 1; Length 220;

Best Local Similarity 40.9%; Pred. No. 11;

Matches 9; Conservative 3; Mismatches 4; Indels 6; Gaps 1;

QY 1 GC-----CSLPPCALSNPDYC 16

DB 151 GCECKITRCMPICYSPPDEC 172

Matches 9; Conservative 3; Mismatches 4; Indels 6; Gaps 1;

Query Match 49.0%; Score 50; DB 1; Length 220;

Best Local Similarity 40.9%; Pred. No. 11;

Matches 9; Conservative 3; Mismatches 4; Indels 6; Gaps 1;

QY 1 GC-----CSLPPCALSNPDYC 16

DB 151 GCECKITRCMPICYSPPDEC 172

Matches 9; Conservative 3; Mismatches 4; Indels 6; Gaps 1;

Query Match 49.0%; Score 50; DB 1; Length 196;

Best Local Similarity 40.9%; Pred. No. 9.9;

Matches 9; Conservative 3; Mismatches 4; Indels 6; Gaps 1;

QY 1 GC-----CSLPPCALSNPDYC 16

DB 127 GCECKITRCMPICYSPPDEC 148

Matches 9; Conservative 3; Mismatches 4; Indels 6; Gaps 1;

Query Match 49.0%; Score 50; DB 1; Length 196;

Best Local Similarity 40.9%; Pred. No. 9.9;

Matches 9; Conservative 3; Mismatches 4; Indels 6; Gaps 1;

QY 1 GC-----CSLPPCALSNPDYC 16

DB 127 GCECKITRCMPICYSPPDEC 148

Matches 9; Conservative 3; Mismatches 4; Indels 6; Gaps 1;

Query Match 49.0%; Score 50; DB 1; Length 196;

Best Local Similarity 40.9%; Pred. No. 9.9;

Matches 9; Conservative 3; Mismatches 4; Indels 6; Gaps 1;

QY 1 GC-----CSLPPCALSNPDYC 16

DB 127 GCECKITRCMPICYSPPDEC 148

Matches 9; Conservative 3; Mismatches 4; Indels 6; Gaps 1;

A:Molecule type: protein  
 A:Residues: 27-77, 'K', 79-81, 'I', 83-100, 'E', 102-117, 119-121, 'R', 123-149, 'Q', 151-174, 'T', 1  
 A:Experimental source: serum-free culture medium of A2058 cells  
 R:Goldberg, G.I.; Marmer, B.L.; Grant, G.A.; Eisen, A.Z.; Wilhelm, S.; He, C.  
 Proc. Natl. Acad. Sci. U.S.A. 86, 8207-8211, 1989  
 A:Title: Human 72-kilodalton type IV collagenase forms a complex with a tissue inhibitor  
 A:Reference number: A34415; MUID:90046765; PMID:2554304  
 A:Accession: A34415  
 A:Molecule type: protein  
 A:Residues: 30-51; 124-141; 159-173 <GOL>  
 R:Malik, K.; Sejima, H.; Aoki, T.; Iwata, K.  
 submitted to the EMBL Data Library, August 1990  
 A:Description: Nucleotide sequence of a TIMP-II cDNA.  
 A:Reference number: S21303  
 A:Accession: S21303  
 A:Molecule type: mRNA  
 A:Residues: 30-95, 'V', 97-214 <MAL>  
 A:Cross-references: EMBL:X54533; NID:g37180; PIDN:CAA38400.1; PID:g37181  
 R:Osthues, A.; Knaeuper, V.; Oberhoff, R.; Reinke, H.; Tschesche, H.  
 FEBS Lett. 296, 15-20, 1992  
 A:Title: Isolation and characterization of tissue inhibitors of metalloproteinases (TIMP  
 A:Reference number: S20318; MUID:92111776; PMID:1730286  
 A:Accession: S20319  
 A:Molecule type: protein  
 A:Residues: 'X', 28, 'X', 30-38, 'X', 40-41 <OST>  
 A:Experimental source: rheumatoid synovial fluid  
 R:Ward, R.V.; Hembry, R.M.; Reynolds, J.J.; Murphy, G.  
 Biochem. J. 278, 179-187, 1991  
 A:Title: The purification of tissue inhibitor of metalloproteinases-2 from its 72 kDa pr  
 A:Reference number: S17165; MUID:91354200; PMID:1909113  
 A:Accession: S17165  
 A>Status: preliminary  
 A:Molecule type: protein  
 A:Residues: 27, 'X', 29, 'X', 31-38 <WAR>  
 R:Ohba, Y.; Goto, Y.; Kimura, Y.; Suzuki, F.; Hisa, T.; Takahashi, K.; Takigawa, M.  
 Biochim. Biophys. Acta 1245, 1-8, 1995  
 A:Title: Purification of an angiogenesis inhibitor from culture medium conditioned by a  
 A:Reference number: S58794; MUID:95383380; PMID:7544625  
 A:Accession: S58794  
 A>Status: preliminary  
 A:Molecule type: protein  
 A:Residues: 27-37 <OHB>  
 C:Genetics:  
 A:Gene: GDB:TIMP2  
 A:Cross-references: GDB:132612; OMIM:188825  
 A:Map position: 17q25-17q25  
 C:Function:  
 A:Description: regulation of extracellular matrix remodeling by inhibition of matrix met  
 Possibly controlling their activation; TIMP-1 and TIMP-2 possess erythroid potentiating  
 C:Superfamily: metalloproteinase inhibitor  
 C:Keywords: erythropoiesis; extracellular matrix; metalloproteinase inhibitor; mitogen  
 F;1-26/Domain: signal sequence #status predicted <SIG>  
 F;27-220/Product: metalloproteinase inhibitor 2 #status experimental <MAT>  
 F;27-98, 29-127, 39-152, 154-201, 159-164, 172-193/disulfide bonds: #status predicted

Query Match 49.0%; Score 50; DB 1; Length 220;  
 Best Local Similarity 40.9%; Pred. No. 11;  
 Matches 9; Conservative 3; Mismatches 4; Indels 6; Gaps 1;

Qy 1 GC-----CSLPRCALSNPDYC 16  
 ||| :||:|:  
 Db 151 GCCKITRCMPICYTSSPDEC 172

Search completed: March 22, 2005, 22:54:24  
 Job time : 9.9769 secs

**This Page Blank (uspto)**

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:44:17 ; Search time 48.5149 Seconds  
(without alignments)  
119,580 Million cell updates/sec

Title: US-09-787-082a-21  
Perfect score: 100  
Sequence: 1 GCCSPPCAANNPDYC 15

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : A\_Geneseq\_16Dec04.\*  
1: Genesep1980s.\*  
2: Genesep1990s.\*  
3: Genesep2000s.\*  
4: Genesep2001s.\*  
5: Genesep2002s.\*  
6: Genesep2003as.\*  
7: Genesep2003bs.\*  
8: Genesep2004s.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	89.5	89.5	16	2	AAY24163 Alpha-con
2	84.5	84.5	16	2	AAY24159 Alpha-con
3	84.5	84.5	16	2	AAY24158 Alpha-con
4	84.5	84.5	56	3	AAB21454 Cone snai
5	79.5	79.5	16	2	AAY24164 Alpha-con
6	78.5	78.5	16	5	AAM50844 Conus pen
7	78.5	78.5	56	3	AAB21455 Cone snai
8	76.5	76.5	56	3	AAB21615 Cone snai
9	76.5	76.5	56	3	AAB21430 Cone snai
10	76.5	76.5	56	3	AAB21463 Cone snai
11	71.5	71.5	21	3	AAB21620 Cone snai
12	70.5	70.5	56	3	AAB21459 Cone snai
13	69.5	69.5	16	2	AAY24160 Alpha-con
14	69.5	69.5	16	2	AAY24166 Alpha-con
15	69.5	69.5	17	2	AAY24166 Alpha-con
16	69.5	69.5	56	3	AAB21427 Cone snai
17	67.5	67.5	16	6	ABP60018 Alpha-con
18	67.5	67.5	17	5	ABG99833 Conus sp
19	67.5	67.5	41	3	AAB21608 Cone snai
20	67.5	67.5	63	5	ABG99664 Conus sp
21	66.5	66.5	16	2	AAR75274 A-lineage
22	66.5	66.5	38	3	AAB21609 Cone snai
23	66.5	66.5	60	3	AAB21435 Cone snai
24	66.5	66.5	62	3	AAB21440 Cone snai
25	66.5	66.5	65	2	AAW24901 C. bandan

26	64.5	64.5	19	5	ABG99819	Abg99819 Conus sp
27	64.5	64.5	61	5	ABG99637	Abg99637 Conus sp
28	64	64.0	17	5	ABG99830	Abg99830 Conus sp
29	64	64.0	41	3	AAB21575	Aab21575 Cone snai
30	64	64.0	63	5	ABG99658	Abg99658 Conus sp
31	63.5	63.5	20	3	AAB21472	Aab21472 Cone snai
32	62.5	62.5	16	2	AAY24162	Aay24162 Alpha-con
33	62.5	62.5	16	2	AAY09524	Aay09524 Alpha-con
34	62.5	62.5	16	2	AAW89495	Aaw89495 Conopepti
35	62.5	62.5	24	3	AAB21619	Aab21619 Cone snai
36	62.5	62.5	38	3	AAB21605	Aab21605 Cone snai
37	62.5	62.5	41	3	AAB21574	Aab21574 Cone snai
38	62.5	62.5	62	3	AAB21441	Aab21441 Cone snai
39	61.5	61.5	15	6	AAW89494	Aaw89494 Conopepti
40	61.5	61.5	15	6	ABP60017	Abp60017 Alpha-con
41	61.5	61.5	16	5	ABG99832	Abg99832 Conus sp
42	61.5	61.5	23	3	AAB21573	Aab21573 Cone snai
43	61.5	61.5	38	3	AAB21577	Aab21577 Cone snai
44	61.5	61.5	57	3	AAB21471	Aab21471 Cone snai
45	61.5	61.5	57	5	ABG99662	Abg99662 Conus sp

## ALIGNMENTS

RESULT 1  
AAY24163  
ID AAY24163 standard; peptide; 16 AA.  
XX  
AC AAY24163;  
XX  
DT 10-SEP-1999 (first entry)  
XX  
DE Alpha-conotoxin peptide SEQ ID NO:9.  
XX  
KW Alpha-conotoxin; neuronal nicotinic acetylcholine receptor; nAChR;  
KW small cell lung carcinoma; cardiovascular disorder; nicotine addiction;  
KW gastric motility disorder; urinary incontinence; mood disorder;  
KW bipolar disorder; unipolar depression; dysthymia;  
KW seasonal affective disorder.  
XX  
OS Conus purpurascens.  
XX  
PN WO9933482-A1.  
XX  
PD 08-JUL-1999.  
XX  
PF 23-DEC-1998; 98WO-US027367.  
XX  
PR 31-DEC-1997; 97US-0070153P.  
PR 03-APR-1998; 98US-0080588P.  
XX  
PA (UTAH ) UNIV UTAH RES FOUND.  
XX  
PI Olivera EM, McIntosh JM, Yoshikami D, Cartier GE, Luo S;  
WPI; 1999-405367/34.  
XX  
PT Alpha-conotoxin peptides that are used to treat disorders regulated at  
PT neuronal nicotinic acetylcholine receptors.  
XX  
PS Claim 28; Page 6; 40pp; English.  
XX  
CC The present sequence represents a specifically claimed example of an  
CC alpha-conotoxin, which can be used to treat disorders regulated at  
CC neuronal nicotinic acetylcholine receptors (nAChR). The alpha-conotoxins  
CC are useful for preparing a pharmaceutical composition for treating  
CC disorders regulated at neuronal nAChR, especially alpha 3 beta 2, alpha 3  
CC beta 4 or alpha 7-containing nAChR. Disorders that can be treated include  
CC cardiovascular disorders, a gastric motility disorder, urinary  
CC incontinence, nicotine addiction, a mood disorder or small cell lung  
CC carcinoma. Mood disorders include bipolar disorder, unipolar depression,  
CC dysthymia and seasonal affective disorder. The alpha- conotoxins can also

CC be used for diagnosis of small cell lung carcinoma. The alpha-conotoxin  
 CC antagonists are able to discriminate between non- symmetrical ligand  
 CC binding interfaces present on the nAChR. The alpha- conotoxin has the  
 CC ability to potentially block any receptor containing a alpha beta subunit  
 CC interface, regardless of what other subunits may be present in the  
 CC receptor complex

XX Sequence 16 AA;

Query Match 89.5%; Score 89.5; DB 2; Length 16;  
 Best Local Similarity 93.8%; Pred. No. 0.00058;  
 Matches 15; Conservative 0; Mismatches 0; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15  
 ||||| ||||| ||||| ||||| |||||  
 DB 1 GCCSLPPCAANNPDYC 16

# RESULT 2

AY24159  
 ID AAY24159 standard; peptide; 16 AA.

AC AAY24159;

DT 10-SEP-1999 (first entry)

DE Alpha-conotoxin peptide SEQ ID NO:11.

XX Alpha-conotoxin; neuronal nicotinic acetylcholine receptor; nAChR;  
 KW small cell lung carcinoma; cardiovascular disorder; nicotine addiction;  
 KW gastric motility disorder; urinary incontinence; mood disorder;  
 KW bipolar disorder; unipolar depression; dysthymia;  
 KW seasonal effective disorder.

OS Conus sp.  
 OS Synthetic.

PN WO9933482-A1.

XX 08-JUL-1999.

PF 23-DEC-1998; 98WO-US027367.

PR 31-DEC-1997; 97US-0070153P.

PR 03-APR-1998; 98US-0080588P.

XX (UTAH ) UNIV UTAH RES FOUND.

PI Olivera BM, McIntosh JM, Yoshikami D, Cartier GE, Luo S;

DR WPI; 1999-405367/34.

XX Alpha-conotoxin peptides that are used to treat disorders regulated at  
 PT neuronal nicotinic acetylcholine receptors.

PS Claim 12; Page 27; 40pp; English.

CC The present sequence represents a specifically claimed example of an  
 CC alpha-conotoxin from the general formula given in AAY24155, which can be  
 CC used to treat disorders regulated at neuronal nicotinic acetylcholine  
 CC receptors (nAChR). The alpha-conotoxins are useful for preparing a  
 CC pharmaceutical composition for treating disorders regulated at neuronal  
 CC nAChR, especially alpha 3 beta 2, alpha 3 beta 4 or alpha 7-containing  
 CC nAChR. Disorders that can be treated include cardiovascular disorders, a  
 CC gastric motility disorder, urinary incontinence, nicotine addiction, a  
 CC mood disorder or small cell lung carcinoma. Mood disorders include  
 CC bipolar disorder, unipolar depression, dysthymia and seasonal effective  
 CC disorder. The alpha-conotoxins can also be used for diagnosis of small  
 CC cell lung carcinoma. The alpha-conotoxin antagonists are able to  
 CC discriminate between non-symmetrical ligand binding interfaces present on  
 CC the nAChR. The alpha-conotoxin has the ability to potentially block any  
 CC receptor containing a alpha beta subunit interface, regardless of what  
 CC other subunits may be present in the receptor complex

XX Sequence 16 AA;

Query Match 84.5%; Score 84.5; DB 2; Length 16;  
 Best Local Similarity 87.5%; Pred. No. 0.0022;  
 Matches 14; Conservative 1; Mismatches 0; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15  
 ||||| ||||| ||||| ||||| |||||  
 DB 1 GCCSLPPCAANNPDYC 16

# RESULT 3

AY24158  
 ID AAY24158 standard; peptide; 16 AA.

AC AAY24158;

DT 10-SEP-1999 (first entry)

DE Alpha-conotoxin peptide SEQ ID NO:10.

XX Alpha-conotoxin; neuronal nicotinic acetylcholine receptor; nAChR;  
 KW small cell lung carcinoma; cardiovascular disorder; nicotine addiction;  
 KW gastric motility disorder; urinary incontinence; mood disorder;  
 KW bipolar disorder; unipolar depression; dysthymia;  
 KW seasonal effective disorder.

OS Conus purpurascens.  
 OS Synthetic.

PN WO9933482-A1.

XX 08-JUL-1999.

PF 23-DEC-1998; 98WO-US027367.

PR 31-DEC-1997; 97US-0070153P.

PR 03-APR-1998; 98US-0080588P.

XX (UTAH ) UNIV UTAH RES FOUND.

PI Olivera BM, McIntosh JM, Yoshikami D, Cartier GE, Luo S;

DR WPI; 1999-405367/34.

PT Alpha-conotoxin peptides that are used to treat disorders regulated at  
 PT neuronal nicotinic acetylcholine receptors.

PS Claim 12; Page 27; 40pp; English.

CC The present sequence represents a specifically claimed example of an  
 CC alpha-conotoxin from the general formula given in AAY24155, which can be  
 CC used to treat disorders regulated at neuronal nicotinic acetylcholine  
 CC receptors (nAChR). The alpha-conotoxins are useful for preparing a  
 CC pharmaceutical composition for treating disorders regulated at neuronal  
 CC nAChR, especially alpha 3 beta 2, alpha 3 beta 4 or alpha 7-containing  
 CC nAChR. Disorders that can be treated include cardiovascular disorders, a  
 CC gastric motility disorder, urinary incontinence, nicotine addiction, a  
 CC mood disorder or small cell lung carcinoma. Mood disorders include  
 CC bipolar disorder, unipolar depression, dysthymia and seasonal effective  
 CC disorder. The alpha-conotoxins can also be used for diagnosis of small  
 CC cell lung carcinoma. The alpha-conotoxin antagonists are able to  
 CC discriminate between non-symmetrical ligand binding interfaces present on  
 CC the nAChR. The alpha-conotoxin has the ability to potentially block any  
 CC receptor containing a alpha beta subunit interface, regardless of what  
 CC other subunits may be present in the receptor complex

XX Sequence 16 AA;

Query Match 84.5%; Score 84.5; DB 2; Length 16;  
 Best Local Similarity 87.5%; Pred. No. 0.0022;  
 Matches 14; Conservative 0; Mismatches 1; Indels 1; Gaps 1;



```

QY      1 GCCT-PPCAANNPDYC 15
DB      ||||| ||||| |||||
        1 GCCTLPPCALNPDYC 16

RESULT 4
AAB21454
ID      AAB21454 standard; protein; 56 AA.
XX
XX      AAB21454;
AC
DT      19-JAN-2001 (first entry)
XX
DE      Cone snail alpha-conotoxin SEQ ID NO: 115.
XX
XX      Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;
KW      neuronal nicotinic acetylcholine receptor; cardiovascular disorder;
KW      gastric motility disorder; urinary incontinence; nicotine addiction;
KW      small cell lung carcinoma.
XX
XX      Conus pennaceus.
OS
XX      WO200044776-A1.
PN
XX
XX      03-AUG-2000.
PD
XX
XX      28-JAN-2000; 2000WO-US001979.
PF
XX      29-JAN-1999; 99US-0118381P.
PR
XX      (UTAH ) UNIV UTAH RES FOUND.
PA      (COGN-) COGNETIX INC.
XX
XX      Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;
PI      WPI; 2000-505965/45.
DR
DR      N-PSDB; AAA89429.
XX
XX      alpha-conotoxin polypeptides derived from the venom of cone snails useful
PT      e.g. as neuromuscular blocking agents for use in surgery and for treating
PT      unipolar depression.
XX
PS      Claim 39; Page 40; 229pp; English.
XX
XX      The present invention relates to a number of alpha-conotoxin peptides and
CC      their coding sequences from a number of different species of cone snail.
CC      These peptides are found in minute quantities in the venom of the snails,
CC      and are targeted at the neuronal nicotinic acetylcholine receptors of the
CC      nervous system. They usually contain two disulphide bonds, which give
CC      them defined conformations, a rarity in molecules this small. The alpha-
CC      conotoxins can be used as neuromuscular blocking agents in surgery, and
CC      for treating disorders regulated at the neuronal nicotinic acetylcholine
CC      receptors, including cardiovascular disorders, gastric motility
CC      disorders, urinary incontinence, nicotine addiction, mood disorders such
CC      as bipolar disorder, unipolar depression, dysthymia and seasonal
CC      affective disorder, and small cell lung carcinoma
XX
XX      Sequence 56 AA;
SQ
Query Match      84.5%; Score 84.5; DB 3; Length 56;
Best Local Similarity 87.5%; Pred. No. 0.0066;
Matches 14; Conservative 0; Mismatches 1; Indels 1; Gaps 1;

QY      1 GCCT-PPCAANNPDYC 15
DB      ||||| ||||| |||||
        40 GCCTSHPPCAANNPDYC 55

RESULT 5
AAY24164
ID      AAY24164 standard; peptide; 16 AA.
XX
XX

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AC      AAY24164;
XX
DT      10-SEP-1999 (first entry)
XX
DE      Alpha-conotoxin peptide SEQ ID NO:12.
XX
KW      Alpha-conotoxin; neuronal nicotinic acetylcholine receptor; nAChR;
KW      small cell lung carcinoma; cardiovascular disorder; nicotine addiction;
KW      gastric motility disorder; urinary incontinence; mood disorder;
KW      bipolar disorder; unipolar depression; dysthymia;
KW      seasonal effective disorder.
XX
OS      Conus purpurascens.
XX
XX      WO9933482-A1.
PN
XX
XX      08-JUL-1999.
PD
XX      23-DEC-1998; 98WO-US027367.
PF
XX      31-DEC-1997; 97US-0070153P.
PR      03-APR-1998; 98US-0080588P.
XX
XX      (UTAH ) UNIV UTAH RES FOUND.
PA
XX
XX      Olivera BM, McIntosh JM, Yoshikami D, Cartier GE, Luo S;
PI      WPI; 1999-405367/34.
DR
XX      Alpha-conotoxin peptides that are used to treat disorders regulated at
PT      neuronal nicotinic acetylcholine receptors.
XX
PS      Claim 28; Page 6; 40pp; English.
XX
XX      The present sequence represents a specifically claimed example of an
CC      alpha-conotoxin, which can be used to treat disorders regulated at
CC      neuronal nicotinic acetylcholine receptors (nAChR). The alpha-conotoxins
CC      are useful for preparing a pharmaceutical composition for treating
CC      disorders regulated at neuronal nAChR, especially alpha 3 beta 2, alpha 3
CC      beta 4 or alpha 7-containing nAChR. Disorders that can be treated include
CC      cardiovascular disorders, a gastric motility disorder, urinary
CC      incontinence, nicotine addiction, a mood disorder or small cell lung
CC      carcinoma. Mood disorders include bipolar disorder, unipolar depression,
CC      dysthymia and seasonal effective disorder. The alpha- conotoxins can also
CC      be used for diagnosis of small cell lung carcinoma. The alpha-conotoxin
CC      antagonists are able to discriminate between non- symmetrical ligand
CC      binding interfaces present on the nAChR. The alpha- conotoxin has the
CC      ability to potentially block any receptor containing a alpha beta subunit
CC      interface, regardless of what other subunits may be present in the
CC      receptor complex
XX
XX      Sequence 16 AA;
SQ
Query Match      79.5%; Score 79.5; DB 2; Length 16;
Best Local Similarity 81.2%; Pred. No. 0.0088;
Matches 13; Conservative 1; Mismatches 1; Indels 1; Gaps 1;

QY      1 GCCT-PPCAANNPDYC 15
DB      ||||| ||||| :|||
        1 GCCTLPPCALNPDYC 16

RESULT 6
AAM50844
ID      AAM50844 standard; peptide; 16 AA.
XX
XX      AAM50844;
AC
XX
XX      01-MAY-2002 (first entry)
DT
XX      Conus pennaceus Trk modulator peptide.
DE
DE      Trk; receptor tyrosine kinase; modulator; snail; neurotrophic factor;
KW

```

KW NTF; mimetic; Huntington's disease; Parkinson's disease;  
 KW Alzheimer's disease; amyotrophic lateral sclerosis;  
 KW neurodegenerative disease; cancer; neuroprotective; nootropic;  
 KW anticonvulsant; antiparkinsonian; cytostatic; therapy; cyclic.

OS Conus pennaceus.

PN WO200203071-A2.

XX 10-JAN-2002.

XX 05-JUL-2001; 2001WO-US021472.

XX 05-JUL-2000; 2000US-0215778P.

XX (PANG-) PANGENE CORP.

XX Bates AT;

XX WPI; 2002-179638/23.

XX Screening for a neurotrophic factor mimetic, useful for treating, e.g.,  
 PT cancer and Alzheimer's, comprises combining a candidate mimetic with a  
 PT fragment of a tyrosine kinase protein.

XX Claim 16; Page 10; 107pp; English.

XX The present sequence is that of a naturally-occurring cyclic peptide from  
 CC the tropical snail Conus pennaceus shell. The peptide is capable of  
 CC modulating the binding of a neurotrophin to a Trk (receptor tyrosine  
 CC kinase) protein, and of modulating the activity of a Trk protein. The  
 CC invention concerns Trks and their ligands that modulate cell growth,  
 CC differentiation and survival. Trk proteins are known to mediate the  
 CC activities of neurotrophins and are also known proto-oncogenes. Methods  
 CC are claimed for screening for small molecule neurotrophic factor mimetics  
 CC capable of binding to a Trk protein or of modulating the binding of a  
 CC neurotrophin to a Trk protein. Also claimed are medicaments comprising  
 CC the present cyclic peptide for treatment of cancer or a neurodegenerative  
 CC disease selected from Huntington's disease, Parkinson's disease,  
 CC Alzheimer's disease and amyotrophic lateral sclerosis

XX Sequence 16 AA;

Query Match 79.5%; Score 79.5; DB 5; Length 16;  
 Best Local Similarity 81.2%; Pred. No. 0.0088;  
 Matches 13; Conservative 1; Mismatches 1; Indels 1; Gaps 1;

OY 1 GCCS-PPCAANNPDYC 15

Db 1 GCCSLPPCALSNPDYC 16

RESULT 7

AAB21455

ID AAB21455 standard; protein; 56 AA.

AC AAB21455;

XX 19-JAN-2001 (first entry)

DE Cone snail alpha-conotoxin SEQ ID NO: 117.

XX Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.

OS Conus pennaceus.

XX WO200044776-A1.

XX 03-AUG-2000.

XX

PF 28-JAN-2000; 2000WO-US001979.

XX 29-JAN-1999; 99US-0118381P.

XX (UTAH) UNIV UTAH RES FOUND.

PA (COGN-) COGNETIX INC.

PI Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;

XX WPI; 2000-505965/45.

DR N-PSDB; AAA89430.

XX alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 PT e.g. as neuromuscular blocking agents for use in surgery and for treating  
 PT unipolar depression.

XX Claim 39; Page 40; 229pp; English.

XX The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.  
 CC These peptides are found in minute quantities in the venom of the snails,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC disorders, urinary incontinence, nicotine addiction, mood disorders such  
 CC as bipolar disorder, unipolar depression, dysthymia and seasonal  
 CC affective disorder, and small cell lung carcinoma

XX Sequence 56 AA;

Query Match 78.5%; Score 78.5; DB 3; Length 56;

Best Local Similarity 81.2%; Pred. No. 0.034;

Matches 13; Conservative 0; Mismatches 2; Indels 1; Gaps 1;

OY 1 GCCS-PPCAANNPDYC 15

Db 40 GCCSHPPCFLNPDYC 55

RESULT 8

AAB21615

ID AAB21615 standard; peptide; 56 AA.

AC AAB21615;

XX 19-JAN-2001 (first entry)

DE Cone snail alpha-conotoxin SEQ ID NO: 358.

XX Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.

OS Conus obscurus.

XX WO200044776-A1.

XX 03-AUG-2000.

XX 28-JAN-2000; 2000WO-US001979.

XX 29-JAN-1999; 99US-0118381P.

XX (UTAH) UNIV UTAH RES FOUND.

PA (COGN-) COGNETIX INC.

PI Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;

XX WPI; 2000-505965/45.

DR N-PSDB; AAA89511.  
 PT alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 PT e.g. as neuromuscular blocking agents for use in surgery and for treating  
 PT unipolar depression.  
 XX  
 PS Claim 39; Page 61; 229pp; English.  
 XX  
 CC The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.  
 CC These peptides are found in minute quantities in the venom of the snails,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC disorders, urinary incontinence, nicotine addiction, mood disorders such  
 CC as bipolar disorder, unipolar depression, dysthymia and seasonal  
 CC affective disorder, and small cell lung carcinoma  
 XX  
 SQ Sequence 56 AA;  
 Query Match 76.5%; Score 76.5; DB 3; Length 56;  
 Best Local Similarity 81.2%; Pred. No. 0.058;  
 Matches 13; Conservative 0; Mismatches 2; Indels 1; Gaps 1;  
 OY 1 GCCS-PPCAANNPDYC 15  
 DB 40 GCCSHPPCAANNQDYC 55  
 RESULT 9  
 AAB21430  
 ID AAB21430 standard; protein; 56 AA.  
 AC AAB21430;  
 DT 19-JAN-2001 (first entry)  
 XX  
 DE Cone snail alpha-conotoxin SEQ ID NO: 67.  
 XX  
 CC Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.  
 XX  
 OS Conus textile.  
 XX  
 FN WO200044776-A1.  
 XX  
 PD 03-AUG-2000.  
 XX  
 PF 28-JAN-2000; 2000WO-US001979.  
 XX  
 PR 29-JAN-1999; 99US-0118381P.  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 PA (COGN-) COGNETIX INC.  
 XX  
 PI Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;  
 XX  
 DR WPI; 2000-505965/45.  
 DR N-PSDB; AAA89405.  
 XX  
 CC alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 PT e.g. as neuromuscular blocking agents for use in surgery and for treating  
 PT unipolar depression.  
 XX  
 PS Claim 39; Page 33; 229pp; English.  
 XX  
 CC The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.

CC These peptides are found in minute quantities in the venom of the snails,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC disorders, urinary incontinence, nicotine addiction, mood disorders such  
 CC as bipolar disorder, unipolar depression, dysthymia and seasonal  
 CC affective disorder, and small cell lung carcinoma  
 XX  
 SQ Sequence 56 AA;  
 Query Match 76.5%; Score 76.5; DB 3; Length 56;  
 Best Local Similarity 81.2%; Pred. No. 0.058;  
 Matches 13; Conservative 0; Mismatches 2; Indels 1; Gaps 1;  
 OY 1 GCCS-PPCAANNPDYC 15  
 DB 40 GCCSRPPCIANNPDLC 55  
 RESULT 10  
 AAB21463  
 ID AAB21463 standard; protein; 59 AA.  
 AC AAB21463;  
 DT 19-JAN-2001 (first entry)  
 XX  
 DE Cone snail alpha-conotoxin SEQ ID NO: 133.  
 XX  
 CC Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.  
 XX  
 OS Conus dalli.  
 XX  
 FN WO200044776-A1.  
 XX  
 PD 03-AUG-2000.  
 XX  
 PF 28-JAN-2000; 2000WO-US001979.  
 XX  
 PR 29-JAN-1999; 99US-0118381P.  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 PA (COGN-) COGNETIX INC.  
 XX  
 PI Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;  
 XX  
 DR WPI; 2000-505965/45.  
 DR N-PSDB; AAA89438.  
 XX  
 CC alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 PT e.g. as neuromuscular blocking agents for use in surgery and for treating  
 PT unipolar depression.  
 XX  
 PS Claim 39; Page 42-43; 229pp; English.  
 XX  
 CC The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.  
 CC These peptides are found in minute quantities in the venom of the snails,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC disorders, urinary incontinence, nicotine addiction, mood disorders such  
 CC as bipolar disorder, unipolar depression, dysthymia and seasonal  
 CC affective disorder, and small cell lung carcinoma

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XX SQ Sequence 59 AA;
Query Match 76.5%; Score 76.5; DB 3; Length 59;
Best Local Similarity 81.2%; Pred. No. 0.061;
Matches 13; Conservative 0; Mismatches 2; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15
   ||||| ||||| |||||
Db 40 GCCSRPPCIANNPDLC 55

RESULT 11
AAB21620
ID AAB21620 standard; peptide; 21 AA.
XX AAB21620;
AC AAB21620;
DE 19-JAN-2001 (first entry)
XX Cone snail alpha-conotoxin SEQ ID NO: 368.
XX Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;
KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;
KW gastric motility disorder; urinary incontinence; nicotine addiction;
KW small cell lung carcinoma.
XX Conus omaria.
OS WO200044776-A1.
XX 03-AUG-2000.
XX 28-JAN-2000; 2000WO-US001979.
XX 29-JAN-1999; 99US-0118381P.
XX (UTAH ) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;
XX WPI; 2000-505965/45.
XX N-PSDB; AAA89516.
XX alpha-conotoxin polypeptides derived from the venom of cone snails useful
PT e.g. as neuromuscular blocking agents for use in surgery and for treating
PT unipolar depression.
XX Claim 39; Page 62; 229pp; English.
XX The present invention relates to a number of alpha-conotoxin peptides and
CC their coding sequences from a number of different species of cone snail.
CC These peptides are found in minute quantities in the venom of the snails,
CC and are targeted at the neuronal nicotinic acetylcholine receptors of the
CC nervous system. They usually contain two disulphide bonds, which give
CC them defined conformations, a rarity in molecules this small. The alpha-
CC conotoxins can be used as neuromuscular blocking agents in surgery, and
CC for treating disorders regulated at the neuronal nicotinic acetylcholine
CC receptors, including cardiovascular disorders, gastric motility
CC disorders, urinary incontinence, nicotine addiction, mood disorders such
CC as bipolar disorder, unipolar depression, dysthymia and seasonal
CC affective disorder, and small cell lung carcinoma
XX SQ Sequence 21 AA;
Query Match 71.5%; Score 71.5; DB 3; Length 21;
Best Local Similarity 75.0%; Pred. No. 0.098;
Matches 12; Conservative 0; Mismatches 3; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15
   ||||| ||||| |||||
Db 5 GCCSDPSCVNNPDYC 20

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RESULT 12
AAB21459
ID AAB21459 standard; protein; 56 AA.
XX AAB21459;
AC AAB21459;
DE 19-JAN-2001 (first entry)
XX Cone snail alpha-conotoxin SEQ ID NO: 125.
XX Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;
KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;
KW gastric motility disorder; urinary incontinence; nicotine addiction;
KW small cell lung carcinoma.
XX Conus episcopatulus.
OS WO200044776-A1.
XX 03-AUG-2000.
XX 28-JAN-2000; 2000WO-US001979.
XX 29-JAN-1999; 99US-0118381P.
XX (UTAH ) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;
XX WPI; 2000-505965/45.
XX N-PSDB; AAA89434.
XX alpha-conotoxin polypeptides derived from the venom of cone snails useful
PT e.g. as neuromuscular blocking agents for use in surgery and for treating
PT unipolar depression.
XX Claim 39; Page 41; 229pp; English.
XX The present invention relates to a number of alpha-conotoxin peptides and
CC their coding sequences from a number of different species of cone snail.
CC These peptides are found in minute quantities in the venom of the snails,
CC and are targeted at the neuronal nicotinic acetylcholine receptors of the
CC nervous system. They usually contain two disulphide bonds, which give
CC them defined conformations, a rarity in molecules this small. The alpha-
CC conotoxins can be used as neuromuscular blocking agents in surgery, and
CC for treating disorders regulated at the neuronal nicotinic acetylcholine
CC receptors, including cardiovascular disorders, gastric motility
CC disorders, urinary incontinence, nicotine addiction, mood disorders such
CC as bipolar disorder, unipolar depression, dysthymia and seasonal
CC affective disorder, and small cell lung carcinoma
XX SQ Sequence 56 AA;
Query Match 70.5%; Score 70.5; DB 3; Length 56;
Best Local Similarity 75.0%; Pred. No. 0.3;
Matches 12; Conservative 0; Mismatches 3; Indels 1; Gaps 1;

QY 1 GCCSPP-CAANNPDYC 15
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Db 40 GCCSDPRCWNVNNPDYC 55

RESULT 13
AAY24160
ID AAY24160 standard; peptide; 16 AA.
XX AAY24160;
AC AAY24160;
XX 10-SEP-1999 (first entry)
XX

```

DE Alpha-conotoxin peptide SEQ ID NO:5.  
 XX  
 KW Alpha-conotoxin; neuronal nicotinic acetylcholine receptor; nAChR;  
 KW small cell lung carcinoma; cardiovascular disorder; nicotine addiction;  
 KW gastric motility disorder; urinary incontinence; mood disorder;  
 KW bipolar disorder; unipolar depression; dysthymia;  
 KW seasonal effective disorder.  
 XX  
 OS Conus aulicus.  
 XX  
 XX WO9933482-A1.  
 XX  
 PD 08-JUL-1999.  
 XX  
 XX 23-DEC-1998; 98WO-US027367.  
 XX  
 XX 31-DEC-1997; 97US-0070153P.  
 PR 03-APR-1998; 98US-0080588P.  
 XX  
 XX (UTAH ) UNIV UTAH RES FOUND.  
 PA  
 PI Olivera BM, McIntosh JM, Yoshikami D, Cartier GE, Luo S;  
 XX WPI; 1999-405367/34.  
 DR  
 XX Alpha-conotoxin peptides that are used to treat disorders regulated at  
 PT neuronal nicotinic acetylcholine receptors.  
 XX  
 PS Claim 28; Page 6; 40pp; English.  
 XX  
 CC The present sequence represents a specifically claimed example of an  
 CC alpha-conotoxin, which can be used to treat disorders regulated at  
 CC neuronal nicotinic acetylcholine receptors (nAChR). The alpha-conotoxins  
 CC are useful for preparing a pharmaceutical composition for treating  
 CC disorders regulated at neuronal nAChR, especially alpha 3 beta 2, alpha 3  
 CC beta 4 or alpha 7-containing nAChR. Disorders that can be treated include  
 CC cardiovascular disorders, a gastric motility disorder, urinary  
 CC incontinence, nicotine addiction, a mood disorder or small cell lung  
 CC carcinoma. Mood disorders include bipolar disorder, unipolar depression,  
 CC dysthymia and seasonal effective disorder. The alpha- conotoxins can also  
 CC be used for diagnosis of small cell lung carcinoma. The alpha-conotoxin  
 CC antagonists are able to discriminate between non- symmetrical ligand  
 CC binding interfaces present on the nAChR. The alpha- conotoxin has the  
 CC ability to potentially block any receptor containing a alpha beta subunit  
 CC interface, regardless of what other subunits may be present in the  
 CC receptor complex  
 XX  
 XX Sequence 16 AA;  
 SQ  
 Query Match 69.5%; Score 69.5; DB 2; Length 16;  
 Best Local Similarity 75.0%; Pred. No. 0.13;  
 Matches 12; Conservative 0; Mismatches 3; Indels 1; Gaps 1;  
 QY 1 GCCS-PPCAANNPDYC 15  
 ||||| ||||| |||||  
 Db 1 GCCSYPPCFATNSDYC 16  
 RESULT 14  
 AAW89493  
 ID AAW89493 standard; protein; 16 AA.  
 XX  
 AC AAW89493;  
 XX  
 XX 12-MAR-1999 (first entry)  
 XX  
 DE Conopeptide AuIA.  
 XX  
 KW Conopeptide; Conus aulicus; AuIA; AuIB; AuIC; nAChR; neurotransmitter;  
 KW neuronal nicotinic acetylcholine receptor; presynaptic release;  
 KW tobacco addiction; cardiovascular; gastric motility disorder;  
 KW urinary incontinence.  
 XX

OS Conus aulicus.  
 XX  
 XX Key Location/Qualifiers  
 FT Disulfide-bond 2..8  
 FT Disulfide-bond 3..16  
 XX  
 PN WO9851322-A1.  
 PD 19-NOV-1998.  
 XX  
 XX 09-APR-1998; 98WO-US007004.  
 XX  
 XX 15-MAY-1997; 97US-00857068.  
 PR  
 XX (UTAH ) UNIV UTAH RES FOUND.  
 PA  
 PI McIntosh JM, Cartier GE, Yoshikami D, Luo S, Olivera BM;  
 XX WPI; 1999-059683/05.  
 DR  
 XX New conopeptides AuIA, AuIB, and AuIC - target neuronal nicotinic  
 PT acetylcholine receptors and modulate neurotransmitter release.  
 XX  
 PS Claim 10; Page 19; 22pp; English.  
 XX  
 CC The present sequence represents a specifically claimed conopeptide.  
 CC Conopeptides are used to target neuronal nicotinic acetylcholine  
 CC receptors (nAChRs) and selectively modulate the presynaptic release of  
 CC specific neurotransmitters, for example in the treatment of tobacco  
 CC addiction, cardiovascular and gastric motility disorders, and urinary  
 CC incontinence  
 XX  
 XX Sequence 16 AA;  
 SQ  
 Query Match 69.5%; Score 69.5; DB 2; Length 16;  
 Best Local Similarity 75.0%; Pred. No. 0.13;  
 Matches 12; Conservative 0; Mismatches 3; Indels 1; Gaps 1;  
 QY 1 GCCS-PPCAANNPDYC 15  
 ||||| ||||| |||||  
 Db 1 GCCSYPPCFATNSDYC 16  
 RESULT 15  
 AAY24166  
 ID AAY24166 standard; peptide; 17 AA.  
 XX  
 AC AAY24166;  
 XX  
 XX 10-SEP-1999 (first entry)  
 XX  
 XX Alpha-conotoxin peptide SEQ ID NO:6.  
 DE  
 KW Alpha-conotoxin; neuronal nicotinic acetylcholine receptor; nAChR;  
 KW small cell lung carcinoma; cardiovascular disorder; nicotine addiction;  
 KW gastric motility disorder; urinary incontinence; mood disorder;  
 KW bipolar disorder; unipolar depression; dysthymia;  
 KW seasonal effective disorder.  
 XX  
 OS Conus aulicus.  
 OS Synthetic.  
 XX  
 XX WO9933482-A1.  
 XX  
 XX 08-JUL-1999.  
 PD  
 XX 23-DEC-1998; 98WO-US027367.  
 XX  
 XX 31-DEC-1997; 97US-0070153P.  
 PR 03-APR-1998; 98US-0080588P.  
 XX  
 XX (UTAH ) UNIV UTAH RES FOUND.  
 PA  
 XX

PI Olivera BM, McIntosh JM, Yoshikami D, Cartier GE, Luo S;  
XX WPI; 1999-405367/34.  
XX  
XX  
PT Alpha-conotoxin peptides that are used to treat disorders regulated at  
PT neuronal nicotinic acetylcholine receptors.  
XX  
XX  
PS Disclosure; Page 6; 40pp; English.  
XX  
XX  
CC The present sequence represents an example of an alpha-conotoxin peptide  
CC from the general formula given in AAY24155, which can be used to treat  
CC disorders regulated at neuronal nicotinic acetylcholine receptors  
CC (nAChR). The alpha-conotoxins are useful for preparing a pharmaceutical  
CC composition for treating disorders regulated at neuronal nAChR,  
CC especially alpha 3 beta 2, alpha 3 beta 4 or alpha 7-containing nAChR.  
CC Disorders that can be treated include cardiovascular disorders, a gastric  
CC motility disorder, urinary incontinence, nicotine addiction, a mood  
CC disorder or small cell lung carcinoma. Mood disorders include bipolar  
CC disorder, unipolar depression, dysthymia and seasonal affective disorder.  
CC The alpha-conotoxins can also be used for diagnosis of small cell lung  
CC carcinoma. The alpha-conotoxin antagonists are able to discriminate  
CC between non-symmetrical ligand binding interfaces present on the nAChR.  
CC The alpha-conotoxin has the ability to potentially block any receptor  
CC containing a alpha beta subunit interface, regardless of what other  
CC subunits may be present in the receptor complex  
XX  
SQ Sequence 17 AA;  
  
Query Match 69.5%; Score 69.5; DB 2; Length 17;  
Best Local Similarity 75.0%; Pred. No. 0.14;  
Matches 12; Conservative 0; Mismatches 3; Indels 1; Gaps 1;  
  
QY 1 GCCS-PPCAANNPDYC 15  
    |||||  
Db 2 GCCSYPCFATNSDYC 17  
    |||||  
  
Search completed: March 23, 2005, 00:03:08  
Job time : 48.5149 secs

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:51:32 ; Search time 12.1287 Seconds  
(without alignments)  
92.321 Million cell updates/sec

Title: US-09-787-082A-21

Perfect score: 100

Sequence: 1 GCCSPPCAANNPDYC 15

Scoring table:

Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

- Issued Patents AA:\*
- 1: /cgm2\_6/ptodata/1/iaa/5A COMB.pep:\*
  - 2: /cgm2\_6/ptodata/1/iaa/5B COMB.pep:\*
  - 3: /cgm2\_6/ptodata/1/iaa/6A COMB.pep:\*
  - 4: /cgm2\_6/ptodata/1/iaa/6B COMB.pep:\*
  - 5: /cgm2\_6/ptodata/1/iaa/6CTUS COMB.pep:\*
  - 6: /cgm2\_6/ptodata/1/iaa/backfiles1.pep:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

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1	89.5	89.5	16	3	US-09-219-446B-9
2	84.5	84.5	16	3	US-09-219-446B-10
3	84.5	84.5	16	3	US-09-219-446B-11
4	84.5	84.5	56	4	US-09-493-795B-115
5	79.5	79.5	16	3	US-09-219-446B-12
6	78.5	78.5	56	4	US-09-493-795B-117
7	76.5	76.5	56	4	US-09-493-795B-67
8	76.5	76.5	56	4	US-09-493-795B-358
9	76.5	76.5	59	4	US-09-493-795B-133
10	71.5	71.5	21	4	US-09-493-795B-368
11	70.5	70.5	56	4	US-09-493-795B-125
12	69.5	69.5	16	2	US-08-857-068-2
13	69.5	69.5	16	3	US-09-219-446B-5
14	69.5	69.5	17	3	US-09-219-446B-6
15	69.5	69.5	56	4	US-09-493-795B-61
16	67.5	67.5	41	4	US-09-493-795B-344
17	66.5	66.5	38	4	US-09-493-795B-346
18	66.5	66.5	60	4	US-09-493-795B-77
19	66.5	66.5	62	4	US-09-493-795B-87
20	66.5	66.5	65	1	US-08-137-800-46
21	66.5	66.5	65	1	US-08-477-383-46
22	66.5	66.5	65	1	US-08-487-174-46
23	66.5	66.5	65	1	US-08-480-750-46
24	64.0	64.0	41	4	US-09-493-795B-278
25	63.5	63.5	20	4	US-09-493-795B-151
26	62.5	62.5	16	2	US-08-857-068-4
27	62.5	62.5	16	3	US-09-219-446B-8

28	62.5	62.5	24	4	US-09-493-795B-366	Sequence 366, App
29	62.5	62.5	38	4	US-09-493-795B-338	Sequence 338, App
30	62.5	62.5	41	4	US-09-493-795B-276	Sequence 276, App
31	62.5	62.5	62	4	US-09-493-795B-89	Sequence 89, Appl
32	61.5	61.5	15	2	US-08-857-068-3	Sequence 3, Appl
33	61.5	61.5	23	4	US-09-493-795B-274	Sequence 274, App
34	61.5	61.5	38	4	US-09-493-795B-282	Sequence 282, App
35	61.5	61.5	57	4	US-09-493-795B-149	Sequence 149, App
36	61.5	61.5	58	4	US-09-493-795B-63	Sequence 63, Appl
37	61.5	61.5	62	4	US-09-493-795B-360	Sequence 360, App
38	60.5	60.5	61	4	US-09-493-795B-107	Sequence 107, App
39	59.5	59.5	38	4	US-09-493-795B-280	Sequence 280, App
40	58.0	58.0	22	4	US-09-493-795B-354	Sequence 354, App
41	57.5	57.5	41	4	US-09-493-795B-268	Sequence 268, App
42	57.5	57.5	64	4	US-09-493-795B-111	Sequence 111, App
43	56.5	56.5	39	4	US-09-493-795B-326	Sequence 326, App
44	56.5	56.5	39	4	US-09-493-795B-386	Sequence 386, App
45	56.5	56.5	62	4	US-09-493-795B-356	Sequence 356, App

#### ALIGNMENTS

RESULT 1  
US-09-219-446B-9  
; Sequence 9, Application US/09219446B  
; Patent No. 6265541  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Luo, Siqin  
; APPLICANT: University of Utah Research Foundation  
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
; FILE REFERENCE: Uses of Alpha-Conotoxins  
; CURRENT APPLICATION NUMBER: US/09/219,446B  
; CURRENT FILING DATE: 1998-12-23  
; PRIOR APPLICATION NUMBER: US 60/080,588  
; PRIOR FILING DATE: 1998-04-03  
; PRIOR APPLICATION NUMBER: US 60/070,153  
; PRIOR FILING DATE: 1997-12-31  
; NUMBER OF SEQ ID NOS: 13  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 9  
; LENGTH: 16  
; TYPE: PRT  
; ORGANISM: Conus purpurascens  
US-09-219-446B-9  
Query Match 89.5%; Score 89.5; DB 3; Length 16;  
Best Local Similarity 93.8%; Pred. No. 0.00022;  
Matches 15; Conservative 0; Mismatches 0; Indels 1; Gaps 1;  
QY 1 GCCSPPCAANNPDYC 15  
DB 1 GCCSLPPCAANNPDYC 16  
RESULT 2  
US-09-219-446B-10  
; Sequence 10, Application US/09219446B  
; Patent No. 6265541  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Luo, Siqin  
; APPLICANT: University of Utah Research Foundation  
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
; FILE REFERENCE: Uses of Alpha-Conotoxins  
; CURRENT APPLICATION NUMBER: US/09/219,446B

; CURRENT FILING DATE: 1998-12-23  
 ; PRIOR APPLICATION NUMBER: US 60/080,588  
 ; PRIOR FILING DATE: 1998-04-03  
 ; PRIOR APPLICATION NUMBER: US 60/070,153  
 ; PRIOR FILING DATE: 1997-12-31  
 ; NUMBER OF SEQ ID NOS: 13  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 10  
 ; LENGTH: 16  
 ; TYPE: PRT  
 ; ORGANISM: Artificial Sequence  
 ; FEATURE:  
 ; OTHER INFORMATION: Description of Artificial Sequence: A10L derivative  
 ; OTHER INFORMATION: of C. purpurascens PnIA  
 US-09-219-446B-10

Query Match 84.5%; Score 84.5; DB 3; Length 16;  
 Best Local Similarity 87.5%; Pred. No. 0.00084;  
 Matches 14; Conservative 0; Mismatches 1; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15  
 ||||| ||||| |||||  
 Db 1 GCCSLPPCALANPDYC 16

RESULT 3  
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 ; Sequence 11, Application US/09219446B  
 ; Patent No. 6265541  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Yoshikami, Doju  
 ; APPLICANT: Cartier, G. Edward  
 ; APPLICANT: Luo, Siglin  
 ; APPLICANT: University of Utah Research Foundation  
 ; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
 ; FILE REFERENCE: Uses of Alpha-Conotoxins  
 ; CURRENT APPLICATION NUMBER: US/09/219,446B  
 ; PRIOR FILING DATE: 1998-12-23  
 ; PRIOR APPLICATION NUMBER: US 60/080,588  
 ; PRIOR FILING DATE: 1998-04-03  
 ; PRIOR APPLICATION NUMBER: US 60/070,153  
 ; PRIOR FILING DATE: 1997-12-31  
 ; NUMBER OF SEQ ID NOS: 13  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 11  
 ; LENGTH: 16  
 ; TYPE: PRT  
 ; ORGANISM: Artificial Sequence  
 ; FEATURE:  
 ; OTHER INFORMATION: Description of Artificial Sequence: N1LS derivative  
 ; OTHER INFORMATION: of C. purpurascens PnIA  
 US-09-219-446B-11

Query Match 84.5%; Score 84.5; DB 3; Length 16;  
 Best Local Similarity 87.5%; Pred. No. 0.00084;  
 Matches 14; Conservative 1; Mismatches 0; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15  
 ||||| ||||| |||||  
 Db 1 GCCSLPPCALANPDYC 16

RESULT 4  
 US-09-493-795B-115  
 ; Sequence 115, Application US/09493795B  
 ; Patent No. 6797808  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: Hillyard, David R.  
 ; APPLICANT: McIntosh, J. Michael

; APPLICANT: Jones, Robert M.  
 ; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
 ; FILE REFERENCE: 2314-179.A  
 ; CURRENT APPLICATION NUMBER: US/09/493,795B  
 ; CURRENT FILING DATE: 2000-01-28  
 ; PRIOR APPLICATION NUMBER: US 60/118,381  
 ; PRIOR FILING DATE: 1999-01-29  
 ; NUMBER OF SEQ ID NOS: 404  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 115  
 ; LENGTH: 56  
 ; TYPE: PRT  
 ; ORGANISM: Conus pennacens  
 US-09-493-795B-115

Query Match 84.5%; Score 84.5; DB 4; Length 56;  
 Best Local Similarity 87.5%; Pred. No. 0.0025;  
 Matches 14; Conservative 0; Mismatches 1; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15  
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 Db 40 GCCSHPPCAMNPDYC 55

RESULT 5  
 US-09-219-446B-12  
 ; Sequence 12, Application US/09219446B  
 ; Patent No. 6265541  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Yoshikami, Doju  
 ; APPLICANT: Cartier, G. Edward  
 ; APPLICANT: Luo, Siglin  
 ; APPLICANT: University of Utah Research Foundation  
 ; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
 ; FILE REFERENCE: Uses of Alpha-Conotoxins  
 ; CURRENT APPLICATION NUMBER: US/09/219,446B  
 ; CURRENT FILING DATE: 1998-12-23  
 ; PRIOR APPLICATION NUMBER: US 60/080,588  
 ; PRIOR FILING DATE: 1998-04-03  
 ; PRIOR APPLICATION NUMBER: US 60/070,153  
 ; PRIOR FILING DATE: 1997-12-31  
 ; NUMBER OF SEQ ID NOS: 13  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 12  
 ; LENGTH: 16  
 ; TYPE: PRT  
 ; ORGANISM: Conus purpurascens  
 US-09-219-446B-12

Query Match 79.5%; Score 79.5; DB 3; Length 16;  
 Best Local Similarity 81.2%; Pred. No. 0.0031;  
 Matches 13; Conservative 1; Mismatches 1; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15  
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 Db 1 GCCSLPPCALANPDYC 16

RESULT 6  
 US-09-493-795B-117  
 ; Sequence 117, Application US/09493795B  
 ; Patent No. 6797808  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: Hillyard, David R.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Jones, Robert M.  
 ; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
 ; FILE REFERENCE: 2314-179.A  
 ; CURRENT APPLICATION NUMBER: US/09/493,795B



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; CURRENT FILING DATE: 2000-01-28
; PRIOR APPLICATION NUMBER: US 60/118,381
; PRIOR FILING DATE: 1999-01-29
; NUMBER OF SEQ ID NOS: 404
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 117
; LENGTH: 56
; TYPE: PRT
; ORGANISM: Conus pennaceus
US-09-493-795B-117

Query Match
Best Local Similarity 78.5%; Score 78.5; DB 4; Length 56;
Matches 13; Conservative 0; Mismatches 2; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15
Db 40 GCCSHPPCFLNPDYC 55

RESULT 7
US-09-493-795B-67
; Sequence 67, Application US/09493795B
; Patent No. 6797808
; GENERAL INFORMATION:
; APPLICANT: Watkins, Maren
; APPLICANT: Oliveira, Baldomero M.
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: Alpha-Conotoxin Peptides
; FILE REFERENCE: 2314-179.A
; CURRENT APPLICATION NUMBER: US/09/493,795B
; CURRENT FILING DATE: 2000-01-28
; PRIOR APPLICATION NUMBER: US 60/118,381
; PRIOR FILING DATE: 1999-01-29
; NUMBER OF SEQ ID NOS: 404
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 67
; LENGTH: 56
; TYPE: PRT
; ORGANISM: Conus textile
US-09-493-795B-67

Query Match
Best Local Similarity 76.5%; Score 76.5; DB 4; Length 56;
Matches 13; Conservative 0; Mismatches 2; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15
Db 40 GCCSRPPCIANNPDLC 55

RESULT 8
US-09-493-795B-358
; Sequence 358, Application US/09493795B
; Patent No. 6797808
; GENERAL INFORMATION:
; APPLICANT: Watkins, Maren
; APPLICANT: Oliveira, Baldomero M.
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: Alpha-Conotoxin Peptides
; FILE REFERENCE: 2314-179.A
; CURRENT APPLICATION NUMBER: US/09/493,795B
; CURRENT FILING DATE: 2000-01-28
; PRIOR APPLICATION NUMBER: US 60/118,381
; PRIOR FILING DATE: 1999-01-29
; NUMBER OF SEQ ID NOS: 404
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 358
; LENGTH: 56
; TYPE: PRT
; ORGANISM: Conus omaria
US-09-493-795B-368

Query Match
Best Local Similarity 71.5%; Score 71.5; DB 4; Length 21;
Matches 12; Conservative 0; Mismatches 3; Indels 1; Gaps 1;
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; TYPE: PRT
; ORGANISM: Conus obscurus
US-09-493-795B-358

Query Match
Best Local Similarity 76.5%; Score 76.5; DB 4; Length 56;
Matches 13; Conservative 0; Mismatches 2; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15
Db 40 GCCSHPPCAQNNQDYC 55

RESULT 9
US-09-493-795B-133
; Sequence 133, Application US/09493795B
; Patent No. 6797808
; GENERAL INFORMATION:
; APPLICANT: Watkins, Maren
; APPLICANT: Oliveira, Baldomero M.
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: Alpha-Conotoxin Peptides
; FILE REFERENCE: 2314-179.A
; CURRENT APPLICATION NUMBER: US/09/493,795B
; CURRENT FILING DATE: 2000-01-28
; PRIOR APPLICATION NUMBER: US 60/118,381
; PRIOR FILING DATE: 1999-01-29
; NUMBER OF SEQ ID NOS: 404
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 133
; LENGTH: 59
; TYPE: PRT
; ORGANISM: Conus dalli
US-09-493-795B-133

Query Match
Best Local Similarity 81.2%; Score 81.2; DB 4; Length 59;
Matches 13; Conservative 0; Mismatches 2; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15
Db 40 GCCSRPPCIANNPDLC 55

RESULT 10
US-09-493-795B-368
; Sequence 368, Application US/09493795B
; Patent No. 6797808
; GENERAL INFORMATION:
; APPLICANT: Watkins, Maren
; APPLICANT: Oliveira, Baldomero M.
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: Alpha-Conotoxin Peptides
; FILE REFERENCE: 2314-179.A
; CURRENT APPLICATION NUMBER: US/09/493,795B
; CURRENT FILING DATE: 2000-01-28
; PRIOR APPLICATION NUMBER: US 60/118,381
; PRIOR FILING DATE: 1999-01-29
; NUMBER OF SEQ ID NOS: 404
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 368
; LENGTH: 21
; TYPE: PRT
; ORGANISM: Conus dalli
US-09-493-795B-368

Query Match
Best Local Similarity 75.0%; Score 75.0; DB 4; Length 21;
Matches 12; Conservative 0; Mismatches 3; Indels 1; Gaps 1;
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QY 1 GCCS-PPCAANNPDYC 15  
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Db 5 GCCSDPSCWNNPDYC 20  
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RESULT 11  
US-09-493-795B-125  
; Sequence 125, Application US/09493795B  
; Patent No. 6797808  
; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Jones, Robert W.  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-179.A  
; CURRENT APPLICATION NUMBER: US/09/493,795B  
; CURRENT FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; PRIOR FILING DATE: 1999-01-29  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 125  
; LENGTH: 56  
; TYPE: PRT  
; ORGANISM: Conus episcopatulus  
US-09-493-795B-125

Query Match 70.5%; Score 70.5; DB 4; Length 56;  
Best Local Similarity 75.0%; Pred. No. 0.1;  
Matches 12; Conservative 0; Mismatches 3; Indels 1; Gaps 1;

QY 1 GCCSPP-CAANNPDYC 15  
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Db 40 GCCSDPRCWNNDYC 55  
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RESULT 12  
US-08-857-068-2  
; Sequence 2, Application US/08857068  
; Patent No. 5866682  
; GENERAL INFORMATION:  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Luo, Siqin  
; APPLICANT: Olivera, Baldomero M.  
; TITLE OF INVENTION: CONOPEPTIDES AUA, AUB AND AUC  
; NUMBER OF SEQUENCES: 4  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
; STREET: 1201 New York Avenue, Suite 1000  
; CITY: Washington  
; STATE: D.C.  
; COUNTRY: US  
; ZIP: 20005  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.30  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/857,068  
; FILING DATE:  
; CLASSIFICATION: 530  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Ihnen, Jeffrey L.  
; REGISTRATION NUMBER: 28,957  
; REFERENCE/DOCKET NUMBER: 24260-121388  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 202-962-4810

; TELEFAX: 202-962-8300  
; INFORMATION FOR SEQ ID NO: 2:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 16 amino acids  
; TYPE: amino acid  
; STRANDEDNESS:  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; ORIGINAL SOURCE:  
; ORGANISM: Conus aulicus  
; FEATURE:  
; NAME/KEY: Disulfide-bond  
; LOCATION: 2..8  
; FEATURE:  
; NAME/KEY: Disulfide-bond  
; LOCATION: 3..16  
US-08-857-068-2

Query Match 69.5%; Score 69.5; DB 2; Length 16;  
Best Local Similarity 75.0%; Pred. No. 0.044;  
Matches 12; Conservative 0; Mismatches 3; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15  
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Db 1 GCCSYPCFATNSDYC 16  
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RESULT 13  
US-09-219-446B-5  
; Sequence 5, Application US/09219446B  
; Patent No. 6265541  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Luo, Siqin  
; APPLICANT: University of Utah Research Foundation  
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
; FILE REFERENCE: Uses of Alpha-Conotoxins  
; CURRENT APPLICATION NUMBER: US/09/219,446B  
; CURRENT FILING DATE: 1998-12-23  
; PRIOR APPLICATION NUMBER: US 60/080,588  
; PRIOR FILING DATE: 1998-04-03  
; PRIOR APPLICATION NUMBER: US 60/070,153  
; PRIOR FILING DATE: 1997-12-31  
; NUMBER OF SEQ ID NOS: 13  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 5  
; LENGTH: 16  
; TYPE: PRT  
; ORGANISM: Conus aulicus  
US-09-219-446B-5

Query Match 69.5%; Score 69.5; DB 3; Length 16;  
Best Local Similarity 75.0%; Pred. No. 0.044;  
Matches 12; Conservative 0; Mismatches 3; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15  
| | | | | | | | | | | | | | | | | | | | | |  
Db 1 GCCSYPCFATNSDYC 16  
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RESULT 14  
US-09-219-446B-6  
; Sequence 6, Application US/09219446B  
; Patent No. 6265541  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Luo, Siqin

; APPLICANT: University of Utah Research Foundation  
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
; FILE REFERENCE: Uses of Alpha-Conotoxins  
; CURRENT APPLICATION NUMBER: US/09/219,446B  
; CURRENT FILING DATE: 1998-12-23  
; PRIOR APPLICATION NUMBER: US 60/080,588  
; PRIOR FILING DATE: 1998-04-03  
; PRIOR APPLICATION NUMBER: US 60/070,153  
; PRIOR FILING DATE: 1997-12-31  
; NUMBER OF SEQ ID NOS: 13  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 6  
; LENGTH: 17  
; TYPE: PRT  
; ORGANISM: Artificial Sequence  
; FEATURE:  
; OTHER INFORMATION: Description of Artificial Sequence:Tyr derivative  
; OTHER INFORMATION: of C. aulicus AUIA  
US-09-219-446B-6

Query Match 69.5%; Score 69.5; DB 3; Length 17;  
Best Local Similarity 75.0%; Pred. No. 0.046;  
Matches 12; Conservative 0; Mismatches 3; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15  
|||||  
DB 2 GCCSYPPCFATNSDYC 17  
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RESULT 15  
US-09-493-795B-61  
; Sequence 61, Application US/09493795B  
; Patent No. 6797808  
; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-179.A  
; CURRENT APPLICATION NUMBER: US/09/493,795B  
; CURRENT FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; PRIOR FILING DATE: 1999-01-29  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 61  
; LENGTH: 56  
; TYPE: PRT  
; ORGANISM: Conus aulicus  
US-09-493-795B-61

Query Match 69.5%; Score 69.5; DB 4; Length 56;  
Best Local Similarity 75.0%; Pred. No. 0.13;  
Matches 12; Conservative 0; Mismatches 3; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15  
|||||  
DB 40 GCCSYPPCFATNSDYC 55  
|||||

Search completed: March 23, 2005, 00:20:51  
Job time : 12.1287 secs

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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 23:46:47 ; Search time 34.2079 Seconds  
(without alignments)  
144.941 Million cell updates/sec

Title: US-09-787-082A-21  
Perfect score: 100  
Sequence: 1 GCCSPPCAANNPDYC 15

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1401741 seqs, 330541175 residues

Total number of hits satisfying chosen parameters: 1401741

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

- Database : Published Applications AA.\*
- 1: /cgn2\_6/ptodata/2/pubpaa/US07\_PUBCOMB.pep.\*
  - 2: /cgn2\_6/ptodata/2/pubpaa/PT\_NEW\_PUB.pep.\*
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  - 7: /cgn2\_6/ptodata/2/pubpaa/US08\_NEW\_PUB.pep.\*
  - 8: /cgn2\_6/ptodata/2/pubpaa/US08\_PUBCOMB.pep.\*
  - 9: /cgn2\_6/ptodata/2/pubpaa/US09A\_PUBCOMB.pep.\*
  - 10: /cgn2\_6/ptodata/2/pubpaa/US09B\_PUBCOMB.pep.\*
  - 11: /cgn2\_6/ptodata/2/pubpaa/US09C\_PUBCOMB.pep.\*
  - 12: /cgn2\_6/ptodata/2/pubpaa/US09\_NEW\_PUB.pep.\*
  - 13: /cgn2\_6/ptodata/2/pubpaa/US10A\_PUBCOMB.pep.\*
  - 14: /cgn2\_6/ptodata/2/pubpaa/US10B\_PUBCOMB.pep.\*
  - 15: /cgn2\_6/ptodata/2/pubpaa/US10C\_PUBCOMB.pep.\*
  - 16: /cgn2\_6/ptodata/2/pubpaa/US10D\_PUBCOMB.pep.\*
  - 17: /cgn2\_6/ptodata/2/pubpaa/US10\_NEW\_PUB.pep.\*
  - 18: /cgn2\_6/ptodata/2/pubpaa/US11\_NEW\_PUB.pep.\*
  - 19: /cgn2\_6/ptodata/2/pubpaa/US60\_NEW\_PUB.pep.\*
  - 20: /cgn2\_6/ptodata/2/pubpaa/US60\_PUBCOMB.pep.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	89.5	89.5	16	9	US-09-897-465-9
2	89.5	89.5	16	16	US-10-827-369-9
3	84.5	84.5	16	9	US-09-897-465-10
4	84.5	84.5	16	9	US-09-897-465-11
5	84.5	84.5	16	16	US-10-827-369-10
6	84.5	84.5	16	16	US-10-827-369-11
7	84.5	84.5	56	17	US-10-895-372-115
8	79.5	79.5	16	9	US-09-897-465-12
9	79.5	79.5	16	16	US-10-827-369-12
10	78.5	78.5	56	17	US-10-895-372-117
11	76.5	76.5	56	17	US-10-895-372-67
12	76.5	76.5	56	17	US-10-895-372-358
13	76.5	76.5	59	17	US-10-895-372-133

14	71.5	71.5	21	17	US-10-895-372-368
15	70.5	70.5	56	17	US-10-895-372-125
16	69.5	69.5	16	9	US-09-897-465-5
17	69.5	69.5	16	16	US-10-827-369-5
18	69.5	69.5	17	9	US-09-897-465-6
19	69.5	69.5	17	16	US-10-827-369-6
20	69.5	69.5	56	17	US-10-895-372-61
21	67.5	67.5	17	14	US-10-072-602B-618
22	67.5	67.5	41	17	US-10-895-372-344
23	67.5	67.5	63	14	US-10-072-602B-446
24	66.5	66.5	38	17	US-10-895-372-346
25	66.5	66.5	60	17	US-10-895-372-77
26	66.5	66.5	62	17	US-10-895-372-87
27	64.5	64.5	19	14	US-10-072-602B-604
28	64.5	64.5	61	14	US-10-072-602B-406
29	64	64.0	17	14	US-10-072-602B-615
30	64	64.0	41	17	US-10-895-372-278
31	64	64.0	63	14	US-10-072-602B-437
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33	62.5	62.5	16	9	US-09-897-465-8
34	62.5	62.5	16	16	US-10-827-369-8
35	62.5	62.5	24	17	US-10-895-372-366
36	62.5	62.5	38	17	US-10-895-372-338
37	62.5	62.5	41	17	US-10-895-372-276
38	62.5	62.5	62	17	US-10-895-372-89
39	61.5	61.5	16	14	US-10-072-602B-617
40	61.5	61.5	23	17	US-10-895-372-274
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42	61.5	61.5	57	14	US-10-072-602B-443
43	61.5	61.5	57	17	US-10-895-372-149
44	61.5	61.5	58	17	US-10-895-372-63
45	61.5	61.5	62	17	US-10-895-372-360

ALIGNMENTS

RESULT 1  
US-09-897-465-9  
; Sequence 9, Application US/09897465  
; Patent No. US20020022715A1  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Luo, Sign  
; APPLICANT: University of Utah Research Foundation  
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
; FILE REFERENCE: Uses of Alpha-Conotoxins  
; CURRENT APPLICATION NUMBER: US/09/897,465  
; CURRENT FILING DATE: 2001-07-03  
; PRIOR APPLICATION NUMBER: US 60/080,588  
; PRIOR FILING DATE: 1998-04-03  
; PRIOR APPLICATION NUMBER: US 60/070,153  
; PRIOR FILING DATE: 1997-12-31  
; NUMBER OF SEQ ID NOS: 13  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 9  
; LENGTH: 16  
; TYPE: PRT  
; ORGANISM: Conus purpurascens  
US-09-897-465-9

Query Match 89.5%; Score 89.5; DB 9; Length 16;  
Best Local Similarity 93.8%; Pred. No. 0.00014;  
Matches 15; Conservative 0; Mismatches 0; Indels 1; Gaps 1;

QY 1 GCCSPPCAANNPDYC 15  
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Db 1 GCCSLPPCAANNPDYC 16

## RESULT 2

US-10-827-369-9  
; Sequence 9, Application US/10827369  
; Publication No. US20040192610A1  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Luo, Siqin  
; APPLICANT: University of Utah Research Foundation  
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-278  
; CURRENT FILING DATE: 2004-04-20  
; CURRENT APPLICATION NUMBER: US 09/897,465  
; PRIOR FILING DATE: 2001-07-03  
; PRIOR APPLICATION NUMBER: US 09/219,446  
; PRIOR FILING DATE: 1998-12-23  
; PRIOR APPLICATION NUMBER: US 60/080,588  
; PRIOR FILING DATE: 1998-04-03  
; PRIOR APPLICATION NUMBER: US 60/070,153  
; PRIOR FILING DATE: 1997-12-31  
; NUMBER OF SEQ ID NOS: 13  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 9  
; LENGTH: 16  
; TYPE: PRT  
; ORGANISM: Conus purpurascens  
US-10-827-369-9

Query Match 89.5%; Score 89.5; DB 16; Length 16;  
Best Local Similarity 93.8%; Pred. No. 0.00014; Indels 1; Gaps 1;  
Matches 15; Conservative 0; Mismatches 0;

QY 1 GCCS-PPCAANNPDYC 15  
||| ||||| |||||  
DB 1 GCCSLPPCAASNPDYC 16

## RESULT 3

US-09-897-465-10  
; Sequence 10, Application US/09897465  
; Patent No. US20020022715A1  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Luo, Siqin  
; APPLICANT: University of Utah Research Foundation  
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
; FILE REFERENCE: Uses of Alpha-Conotoxins  
; CURRENT APPLICATION NUMBER: US/09/897,465  
; CURRENT FILING DATE: 2001-07-03  
; PRIOR APPLICATION NUMBER: US 60/080,588  
; PRIOR FILING DATE: 1998-04-03  
; PRIOR APPLICATION NUMBER: US 60/070,153  
; PRIOR FILING DATE: 1997-12-31  
; NUMBER OF SEQ ID NOS: 13  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 10  
; LENGTH: 16  
; TYPE: PRT  
; ORGANISM: Artificial Sequence  
; FEATURE:  
; OTHER INFORMATION: Description of Artificial Sequence: A10L derivative  
; OTHER INFORMATION: of C. purpurascens PnIA  
US-09-897-465-10

Query Match 84.5%; Score 84.5; DB 9; Length 16;  
Best Local Similarity 87.5%; Pred. No. 0.00059; Indels 1; Gaps 1;  
Matches 14; Conservative 0; Mismatches 1;

QY 1 GCCS-PPCAANNPDYC 15  
||| ||||| |||||  
DB 1 GCCSLPPCAASNPDYC 16

## RESULT 4

US-09-897-465-11  
; Sequence 11, Application US/09897465  
; Patent No. US20020022715A1  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Luo, Siqin  
; APPLICANT: University of Utah Research Foundation  
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
; FILE REFERENCE: Uses of Alpha-Conotoxins  
; CURRENT APPLICATION NUMBER: US/09/897,465  
; CURRENT FILING DATE: 2001-07-03  
; PRIOR APPLICATION NUMBER: US 60/080,588  
; PRIOR FILING DATE: 1998-04-03  
; PRIOR APPLICATION NUMBER: US 60/070,153  
; PRIOR FILING DATE: 1997-12-31  
; NUMBER OF SEQ ID NOS: 13  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 11  
; LENGTH: 16  
; TYPE: PRT  
; ORGANISM: Artificial Sequence  
; FEATURE:  
; OTHER INFORMATION: Description of Artificial Sequence: N1LS derivative  
; OTHER INFORMATION: of C. purpurascens PnIA  
US-09-897-465-11

Query Match 84.5%; Score 84.5; DB 9; Length 16;  
Best Local Similarity 87.5%; Pred. No. 0.00059; Indels 1; Gaps 1;  
Matches 14; Conservative 1; Mismatches 0;

QY 1 GCCS-PPCAANNPDYC 15  
||| ||||| |||||  
DB 1 GCCSLPPCAASNPDYC 16

## RESULT 5

US-10-827-369-10  
; Sequence 10, Application US/10827369  
; Publication No. US20040192610A1  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Luo, Siqin  
; APPLICANT: University of Utah Research Foundation  
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-278  
; CURRENT APPLICATION NUMBER: US/10/827,369  
; CURRENT FILING DATE: 2004-04-20  
; PRIOR APPLICATION NUMBER: US 09/897,465  
; PRIOR FILING DATE: 2001-07-03  
; PRIOR APPLICATION NUMBER: US 09/219,446  
; PRIOR FILING DATE: 1998-12-23  
; PRIOR APPLICATION NUMBER: US 60/080,588  
; PRIOR FILING DATE: 1998-04-03  
; PRIOR APPLICATION NUMBER: US 60/070,153  
; PRIOR FILING DATE: 1997-12-31  
; NUMBER OF SEQ ID NOS: 13  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 10  
; LENGTH: 16  
; TYPE: PRT

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; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence: A10L derivative
; OTHER INFORMATION: of C. purpurascens PnIA
US-10-827-369-10

Query Match      84.5%; Score 84.5; DB 16; Length 16;
Best Local Similarity 87.5%; Pred. No. 0.00059;
Matches 14; Conservative 0; Mismatches 1; Indels 1; Gaps 1;

QY 1 GCCSLPPCAANNPDYC 15
Db 1 GCCSLPPCALNNPDYC 16

RESULT 6
US-10-827-369-11
; Sequence 11, Application US/10827369
; Publication No. US20040192610A1
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Yoshikami, Doju
; APPLICANT: Cartier, G. Edward
; APPLICANT: Luo, Sigin
; APPLICANT: University of Utah Research Foundation
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides
; FILE REFERENCE: 2314-278
; CURRENT APPLICATION NUMBER: US 09/897,465
; PRIOR FILING DATE: 2004-04-20
; PRIOR FILING DATE: 2001-07-03
; PRIOR APPLICATION NUMBER: US 09/219,446
; PRIOR FILING DATE: 1998-12-23
; PRIOR APPLICATION NUMBER: US 60/080,588
; PRIOR FILING DATE: 1998-04-03
; PRIOR APPLICATION NUMBER: US 60/070,153
; PRIOR FILING DATE: 1997-12-31
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 11
; LENGTH: 16
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence: N1LS derivative
; OTHER INFORMATION: of C. purpurascens PnIA
US-10-827-369-11

Query Match      84.5%; Score 84.5; DB 16; Length 16;
Best Local Similarity 87.5%; Pred. No. 0.00059;
Matches 14; Conservative 1; Mismatches 0; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15
Db 1 GCCSLPPCAASNPDYC 16

RESULT 7
US-10-895-372-115
; Sequence 115, Application US/10895372
; Publication No. US20050032705A1
; GENERAL INFORMATION:
; APPLICANT: Watkins, Maren
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: Alpha-Conotoxin Peptides
; FILE REFERENCE: 2314-286
; CURRENT APPLICATION NUMBER: US/10/895,372
; CURRENT FILING DATE: 2004-07-21
; PRIOR APPLICATION NUMBER: US 09/493,795

; ORGANISM: Conus pennaceus
; TYPE: PRT
; ORGANISM: Conus pennaceus
US-10-895-372-115

Query Match      84.5%; Score 84.5; DB 17; Length 56;
Best Local Similarity 87.5%; Pred. No. 0.0018;
Matches 14; Conservative 0; Mismatches 1; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15
Db 40 GCCSHPPCAANNPDYC 55

RESULT 8
US-09-897-465-12
; Sequence 12, Application US/09897465
; Patent No. US2002022715A1
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Yoshikami, Doju
; APPLICANT: Cartier, G. Edward
; APPLICANT: Luo, Sigin
; APPLICANT: University of Utah Research Foundation
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides
; FILE REFERENCE: Uses of Alpha-Conotoxins
; CURRENT APPLICATION NUMBER: US/09/897,465
; CURRENT FILING DATE: 2001-07-03
; PRIOR APPLICATION NUMBER: US 60/080,588
; PRIOR FILING DATE: 1998-04-03
; PRIOR APPLICATION NUMBER: US 60/070,153
; PRIOR FILING DATE: 1997-12-31
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 12
; LENGTH: 16
; TYPE: PRT
; ORGANISM: Conus purpurascens
; ORGANISM: Conus purpurascens
US-09-897-465-12

Query Match      79.5%; Score 79.5; DB 9; Length 16;
Best Local Similarity 81.2%; Pred. No. 0.0025;
Matches 13; Conservative 1; Mismatches 1; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15
Db 1 GCCSLPPCALSNPDYC 16

RESULT 9
US-10-827-369-12
; Sequence 12, Application US/10827369
; Publication No. US20040192610A1
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Yoshikami, Doju
; APPLICANT: Cartier, G. Edward
; APPLICANT: Luo, Sigin
; APPLICANT: University of Utah Research Foundation
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides
; FILE REFERENCE: 2314-278
; CURRENT APPLICATION NUMBER: US/10/827,369
; CURRENT FILING DATE: 2004-04-20
; PRIOR APPLICATION NUMBER: US 09/897,465
; PRIOR FILING DATE: 2001-07-03
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; PRIOR APPLICATION NUMBER: US 09/219,446  
 ; PRIOR FILING DATE: 1998-12-23  
 ; PRIOR APPLICATION NUMBER: US 60/080,588  
 ; PRIOR FILING DATE: 1998-04-03  
 ; PRIOR APPLICATION NUMBER: US 60/070,153  
 ; PRIOR FILING DATE: 1997-12-31  
 ; NUMBER OF SEQ ID NOS: 13  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 12  
 ; LENGTH: 16  
 ; TYPE: PRT  
 ; ORGANISM: Conus purpurascens  
 US-10-827-369-12

Query Match 79.5%; Score 79.5; DB 16; Length 16;  
 Best Local Similarity 81.2%; Pred. No. 0.0025; Mismatches 1; Indels 1; Gaps 1;

QY 1 GCCSLPPCALSNPDYC 15  
 DB 1 GCCSLPPCALSNPDYC 16

RESULT 10  
 US-10-895-372-117  
 ; Sequence 117, Application US/10895372  
 ; Publication No. US20050032705A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: Hillyard, David R.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Jones, Robert M.  
 ; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
 ; FILE REFERENCE: 2314-286  
 ; CURRENT APPLICATION NUMBER: US/10/895,372  
 ; CURRENT FILING DATE: 2004-07-21  
 ; PRIOR APPLICATION NUMBER: US 09/493,795  
 ; PRIOR FILING DATE: 2000-01-28  
 ; PRIOR APPLICATION NUMBER: US 60/118,381  
 ; PRIOR FILING DATE: 1999-01-29  
 ; NUMBER OF SEQ ID NOS: 404  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 117  
 ; LENGTH: 56  
 ; TYPE: PRT  
 ; ORGANISM: Conus pennaceus  
 US-10-895-372-117

Query Match 78.5%; Score 78.5; DB 17; Length 56;  
 Best Local Similarity 81.2%; Pred. No. 0.0099; Mismatches 2; Indels 1; Gaps 1;

QY 1 GCCSLPPCALSNPDYC 15  
 DB 40 GCCSLPPCALSNPDYC 55

RESULT 11  
 US-10-895-372-67  
 ; Sequence 67, Application US/10895372  
 ; Publication No. US20050032705A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: Hillyard, David R.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Jones, Robert M.  
 ; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
 ; FILE REFERENCE: 2314-286  
 ; CURRENT APPLICATION NUMBER: US/10/895,372  
 ; CURRENT FILING DATE: 2004-07-21  
 ; PRIOR APPLICATION NUMBER: US 09/493,795

; PRIOR FILING DATE: 2000-01-28  
 ; PRIOR APPLICATION NUMBER: US 60/118,381  
 ; PRIOR FILING DATE: 1999-01-29  
 ; NUMBER OF SEQ ID NOS: 404  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 67  
 ; LENGTH: 56  
 ; TYPE: PRT  
 ; ORGANISM: Conus textile  
 US-10-895-372-67

Query Match 76.5%; Score 76.5; DB 17; Length 56;  
 Best Local Similarity 81.2%; Pred. No. 0.017; Mismatches 2; Indels 1; Gaps 1;

QY 1 GCCSLPPCALSNPDYC 15  
 DB 40 GCCSLPPCALSNPDYC 55

RESULT 12  
 US-10-895-372-358  
 ; Sequence 358, Application US/10895372  
 ; Publication No. US20050032705A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: Hillyard, David R.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Jones, Robert M.  
 ; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
 ; FILE REFERENCE: 2314-286  
 ; CURRENT APPLICATION NUMBER: US/10/895,372  
 ; CURRENT FILING DATE: 2004-07-21  
 ; PRIOR APPLICATION NUMBER: US 09/493,795  
 ; PRIOR FILING DATE: 2000-01-28  
 ; PRIOR APPLICATION NUMBER: US 60/118,381  
 ; PRIOR FILING DATE: 1999-01-29  
 ; NUMBER OF SEQ ID NOS: 404  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 358  
 ; LENGTH: 56  
 ; TYPE: PRT  
 ; ORGANISM: Conus obscurus  
 US-10-895-372-358

Query Match 76.5%; Score 76.5; DB 17; Length 56;  
 Best Local Similarity 81.2%; Pred. No. 0.017; Mismatches 2; Indels 1; Gaps 1;

QY 1 GCCSLPPCALSNPDYC 15  
 DB 40 GCCSLPPCALSNPDYC 55

RESULT 13  
 US-10-895-372-133  
 ; Sequence 133, Application US/10895372  
 ; Publication No. US20050032705A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: Hillyard, David R.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Jones, Robert M.  
 ; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
 ; FILE REFERENCE: 2314-286  
 ; CURRENT APPLICATION NUMBER: US/10/895,372  
 ; CURRENT FILING DATE: 2004-07-21  
 ; PRIOR APPLICATION NUMBER: US 09/493,795  
 ; PRIOR FILING DATE: 2000-01-28  
 ; PRIOR APPLICATION NUMBER: US 60/118,381  
 ; PRIOR FILING DATE: 1999-01-29



```
; NUMBER OF SEQ ID NOS: 404
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 133
; LENGTH: 59
; TYPE: PRT
; ORGANISM: Conus dalli
US-10-895-372-133

Query Match
Best Local Similarity 76.5%; Score 76.5; DB 17; Length 59;
Matches 13; Conservative 0; Mismatches 2; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15
Db 40 GCCSRPPCIANNPDLC 55
```

```
RESULT 14
US-10-895-372-368
; Sequence 368, Application US/10895372
; Publication No. US20050032705A1
; GENERAL INFORMATION:
; APPLICANT: Watkins, Maren
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: Alpha-Conotoxin Peptides
; FILE REFERENCE: 2314-286
; CURRENT APPLICATION NUMBER: US/10/895,372
; CURRENT FILING DATE: 2004-07-21
; PRIOR APPLICATION NUMBER: US 09/493,795
; PRIOR FILING DATE: 2000-01-28
; PRIOR APPLICATION NUMBER: US 60/118,381
; PRIOR FILING DATE: 1999-01-29
; NUMBER OF SEQ ID NOS: 404
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 368
; LENGTH: 21
; TYPE: PRT
; ORGANISM: Conus omaria
US-10-895-372-368
```

```
Query Match
Best Local Similarity 71.5%; Score 71.5; DB 17; Length 21;
Matches 12; Conservative 0; Mismatches 3; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15
Db 5 GCCSDPSCNVPDYC 20
```

```
RESULT 15
US-10-895-372-125
; Sequence 125, Application US/10895372
; Publication No. US20050032705A1
; GENERAL INFORMATION:
; APPLICANT: Watkins, Maren
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: Alpha-Conotoxin Peptides
; FILE REFERENCE: 2314-286
; CURRENT APPLICATION NUMBER: US/10/895,372
; CURRENT FILING DATE: 2004-07-21
; PRIOR APPLICATION NUMBER: US 09/493,795
; PRIOR FILING DATE: 2000-01-28
; PRIOR APPLICATION NUMBER: US 60/118,381
; PRIOR FILING DATE: 1999-01-29
; NUMBER OF SEQ ID NOS: 404
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 125
```

```
; LENGTH: 56
; TYPE: PRT
; ORGANISM: Conus episcopatus
US-10-895-372-125

Query Match
Best Local Similarity 70.5%; Score 70.5; DB 17; Length 56;
Matches 12; Conservative 0; Mismatches 3; Indels 1; Gaps 1;

QY 1 GCCSPP-CAANNPDYC 15
Db 40 GCCSDPRCMMNPDYC 55

Search completed: March 23, 2005, 00:35:05
Job time : 34.2794 secs
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:45:36 ; Search time 40.0495 Seconds  
(without alignments)  
191.792 Million cell updates/sec

Title: US-09-787-082A-21  
Perfect score: 100  
Sequence: 1 GCCSPPCANNPDYC 15

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : UniProt 03.\*

1: uniprot\_sprot.\*

2: uniprot\_trembl.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	ID	Description
1	89.5	89.5	16 1 CXAA_CONPE	P50984 conus penna
2	79.5	79.5	61 1 CXAB_CONPE	P50985 conus penna
3	79.5	79.5	61 2 Q9BP56	Q9BP56 conus penna
4	70.5	70.5	16 1 CXA1_CONEP	P56638 conus epic
5	69.5	69.5	16 1 CXA1_CONAL	P56639 conus aulic
6	67.5	67.5	68 2 Q6PBD0	Q6PBD0 conus miles
7	66.5	66.5	65 2 Q6PTD1	Q6PTD1 conus marmo
8	64.5	64.5	66 2 Q6PPB2	Q6PPB2 conus querc
9	62.5	62.5	16 1 CXA3_CONAL	P56641 conus aulic
10	61.5	61.5	15 1 CXA2_CONAL	P56640 conus aulic
11	61.5	61.5	67 2 Q6PTD7	Q6PTD7 conus querc
12	61.5	61.5	68 2 Q6PTD4	Q6PTD4 conus leopa
13	59.5	59.5	67 2 Q6PPB3	Q6PPB3 conus querc
14	54.5	54.5	40 1 CXAB_CONGE	Q867B2 conus geogr
15	54.5	54.5	118 2 Q8C210	Q8C210 mus musculus
16	54.5	54.5	135 2 Q6U7W9	Q6U7W9 crinipellis
17	52.0	52.0	260 2 Q45993	Q45993 caenorhabdi
18	51.5	51.5	19 1 CXAD_CONGE	P60274 conus geogr
19	50.0	50.0	693 2 Q8S7C8	Q8S7C8 oryza sativ
20	50.0	50.0	693 2 Q7XC16	Q7XC16 oryza sativ
21	49.5	49.5	68 2 Q6PTD2	Q6PTD2 conus leopa
22	49.5	49.5	2476 1 ZAN_PIG	Q28983 sus scrofa
23	49.0	49.0	96 1 K1J3_HUMAN	P60328 homo sapien
24	49.0	49.0	298 1 K1J8_HUMAN	P60412 homo sapien
25	49.0	49.0	402 2 Q9VJU9	Q9VJU9 drosophila
26	49.0	49.0	504 2 Q869B1	Q869B1 entamoeba h
27	48.5	48.5	63 2 Q6PPB1	Q6PPB1 conus leopa
28	48.5	48.5	67 2 Q6PTD3	Q6PTD3 conus leopa
29	48.0	48.0	67 2 Q9VM83	Q9VM83 drosophila
30	48.0	48.0	210 2 Q8TC93	Q8TC93 homo sapien
31	48.0	48.0	221 1 K1J3_HUMAN	P60369 homo sapien

32	48	48.0	245	1	K1OC_HUMAN	P60413 homo sapien
33	48	48.0	350	1	FX32_RAT	Q91262 rattus norv
34	48	48.0	355	1	FX32_HUMAN	Q969P5 homo sapien
35	48	48.0	355	1	FX32_MOUSE	Q9CPU7 mus musculus
36	48	48.0	356	2	Q7ZTY2	Q7ZTY2 brachydanio
37	48	48.0	361	1	CADH_LOLPR	Q22380 lolium pere
38	48	48.0	361	2	Q947S0	Q947S0 festuca aru
39	48	48.0	361	2	Q947S1	Q947S1 festuca aru
40	48	48.0	361	2	Q947S2	Q947S2 festuca aru
41	48	48.0	361	2	Q947S3	Q947S3 festuca aru
42	48	48.0	363	2	Q6ZHS4	Q6ZHS4 oryza sativ
43	48	48.0	365	1	CADH_SACOF	Q82056 saccharum o
44	48	48.0	365	1	K1J6_HUMAN	P60371 homo sapien
45	48	48.0	367	1	CADH_WAIZE	Q24562 zea mays (m

#### ALIGNMENTS

#### RESULT 1

ID	CXAA_CONPE	STANDARD;	PRT;	16 AA.
DT	P50984;			
DT	01-OCT-1996 (Rel. 34, Created)			
DT	01-OCT-1996 (Rel. 34, Last sequence update)			
DT	25-OCT-2004 (Rel. 45, Last annotation update)			
DE	Alpha-conotoxin PnIA.			
OS	Conus pennaceus (feathered cone).			
OC	Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;			
OC	Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;			
OC	Neogastropoda; Conoidea; Conidae; Conus.			
OX	NCBI_TaxID=37335;			
RN	[1]			
RP	SEQUENCE.			
RC	TISSUE=Venom;			
RX	MEDLINE=94347719; PubMed=8068627;			
RA	Fainzilber M., Hesson A., Oren R., Burlingame A.L., Gordon D.,			
RA	Spira W.E., Zlotkin E.;			
RT	"New mollusc-specific alpha-conotoxins block Aplysia neuronal			
RT	acetylcholine receptors.";			
RL	Biochemistry 33:9523-9529(1994).			
RN	[2]			
RP	SULFATION OF TYR-15.			
RX	MEDLINE=99242956; PubMed=10226369;			
RA	Wolffender J.L., Chu F., Ball H., Wolfender F., Fainzilber M.,			
RA	Baldwin M.A., Burlingame A.L.;			
RT	"Identification of tyrosine sulfation in Conus pennaceus conotoxins			
RT	alpha-PnIA and alpha-PnIB: further investigation of labile sulfo- and			
RT	phosphopeptides by electrospray, matrix-assisted laser			
RT	desorption/ionization (MALDI) and atmospheric pressure MALDI mass			
RT	spectrometry.";			
RL	J. Mass Spectrom. 34:447-454(1999).			
RN	[3]			
RP	X-RAY CRYSTALLOGRAPHY (1.1 ANGSTROMS).			
RX	MEDLINE=96311177; PubMed=8740364; DOI=10.1016/S0969-2126(96)00047-0;			
RA	Hu S.-H., Gehrman J., Guddat L.W., Alewood P.F., Craik D.J.,			
RA	Martin J.L.;			
RT	"The 1.1 A crystal structure of the neuronal acetylcholine receptor			
RT	antagonist, alpha-conotoxin PnIA from Conus pennaceus.";			
RL	Structure 4:417-423(1996).			
CC	-!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they			
CC	bind to the nicotinic acetylcholine receptors (nAChR) and thus			
CC	inhibit them. In contrast to other alpha-conotoxins, which are			
CC	selective for vertebrate skeletal muscle nAChR, the Conus			
CC	pennaceus alpha-conotoxins block nAChR in mollusks.			
CC	-!- SUBCELLULAR LOCATION: Secreted.			
CC	-!- TISSUE SPECIFICITY: Expressed by the venom duct.			
CC	-!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type			
CC	family.			
DR	PIR; A54877; A54877.			
DR	PDB; 1PEN; X-ray; @=1-15.			
KW	3D-structure; Acetylcholine receptor inhibitor; Amidation;			
KW	Direct protein sequencing; Neurotoxin; Postsynaptic neurotoxin;			

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KW Sulfation; Toxin.
FT DISULFID 2 8
FT MOD_RES 15 16
FT MOD_RES 15 15
FT MOD_RES 16 16
FT HELIX 2 4
FT HELIX 6 11
FT TURN 13 16
SQ SEQUENCE 16 AA; 1628 MW; 05310FF95EC99005 CRC64;

Query Match 89.5%; Score 89.5; DB 1; Length 16;
Best Local Similarity 93.8%; Pred. No. 9.8e-06;
Matches 15; Conservative 0; Mismatches 0; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15
Db 1 GCCSLPPCAANNPDYC 16

RESULT 2
CXAB CONPE
ID CXAB_CONPE STANDARD; PRT; 61 AA.
AC P50985; Q9BP57;
DT 01-OCT-1996 (Rel. 34, Created)
DT 29-MAR-2004 (Rel. 43, Last sequence update)
DT 25-OCT-2004 (Rel. 45, Last annotation update)
DE Alpha-conotoxin PnIB precursor.
OS Conus pennaceus (feathered cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=37335;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=21105969; PubMed=11158371;
RA Conticello S.G., Gilad Y., Avidan N., Ben-Asher E., Levy Z.,
RA Fainzilber M.;
RT "Mechanisms for evolving hypervariability: the case of conopeptides.";
RL Mol. Biol. Evol. 18:120-131(2001).
RN [2]
RP SEQUENCE OF 45-60.
RC TISSUE=Venom;
RX MEDLINE=94347719; PubMed=8068627;
RA Fainzilber M., Hesson A., Oren R., Burlingame A.L., Gordon D.,
RA Spira M.E., Zlotkin E.;
RT "New mollusc-specific alpha-conotoxins block Aplysia neuronal
RT acetylcholine receptors.";
RL Biochemistry 33:9523-9529(1994).
RN [3]
RP SULFATION OF TVR-59.
RX MEDLINE=99242956; PubMed=10226369;
RA Wolfender J.L., Chu F., Ball H., Wolfender F., Fainzilber M.,
RA Baldwin M.A., Burlingame A.L.;
RT "Identification of tyrosine sulfation in Conus pennaceus conotoxins
RT alpha-PnIA and alpha-PnIB: further investigation of labile sulfo- and
RT phosphopeptides by electrospray, matrix-assisted laser
RT desorption/ionization (MALDI) and atmospheric pressure MALDI mass
RT spectrometry.";
RL J. Mass Spectrom. 34:447-454(1999).
RN [4]
RP X-RAY CRYSTALLOGRAPHY (1.1 ANGSTROMS) OF 45-60.
RX MEDLINE=97444322; PubMed=9298951; DOI=10.1021/bi9713052;
RA Hu S.H., Gehrmann J., Alewood P.F., Craik D.J., Martin J.L.;
RT "Crystal structure at 1.1-A resolution of alpha-conotoxin PnIB:
RT comparison with alpha-conotoxins PnIA and GI.";
RL Biochemistry 36:11323-11330(1997).
CC -!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they
CC bind to the nicotinic acetylcholine receptors (nAChR) and thus
CC inhibit them. In contrast to other alpha-conotoxins, which are
CC selective for vertebrate skeletal muscle nAChR, the Conus
CC pennaceus alpha-conotoxins block nAChR in mollusks.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.

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CC -!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type
CC family.
CC
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
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CC or send an email to license@isb-sib.ch).
CC
CC EMBL; AF215088; AAG60509.1; -.
DR PIR; B54877; B54877.
DR PDB; 1AKG; X-ray; @=1-16.
DR InterPro; IPR009958; Toxin_8.
KW 3D-structure; Acetylcholine receptor inhibitor; Amidation;
KW Direct protein sequencing; Neurotoxin; Postsynaptic neurotoxin;
KW Signal; Sulfation; Toxin.
FT SIGNAL 1 21 Potential.
FT PROPEP 22 44 Alpha-conotoxin PnIB.
FT CHAIN 45 60
FT DISULFID 46 52
FT DISULFID 47 60
FT MOD_RES 59 59 Sulfotyrosine.
FT MOD_RES 60 60 Cysteine amide (G-61 provides amide
FT group).
FT HELIX 46 48
FT HELIX 50 55
FT TURN 57 60
SQ SEQUENCE 61 AA; 6363 MW; 42E0033324D6922 CRC64;

Query Match 79.5%; Score 79.5; DB 1; Length 61;
Best Local Similarity 81.2%; Pred. No. 0.00082;
Matches 13; Conservative 1; Mismatches 1; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15
Db 45 GCCSLPPCALSNPDYC 60

RESULT 3
Q9BP56
ID Q9BP56 PRELIMINARY; PRT; 61 AA.
AC Q9BP56;
DT 01-JUN-2001 (TRENBLrel. 17, Created)
DT 01-JUN-2001 (TRENBLrel. 17, Last sequence update)
DT 01-MAR-2001 (TRENBLrel. 26, Last annotation update)
DE Conotoxin scaffold I.
OS Conus pennaceus (feathered cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=37335;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=21105969; PubMed=11158371;
RA Conticello S.G., Gilad Y., Avidan N., Ben-Asher E., Levy Z.,
RA Fainzilber M.;
RT "Mechanisms for evolving hypervariability: the case of conopeptides.";
RL Mol. Biol. Evol. 18:120-131(2001).
DR EMBL; AF215089; AAG60510.1; -.
DR HSP; P50985; 1AKG.
DR InterPro; IPR009958; Toxin_8.
DR Pfam; PF07365; Toxin_8; 1.
SQ SEQUENCE 61 AA; 6348 MW; 6FCFD3333D306921 CRC64;

Query Match 79.5%; Score 79.5; DB 2; Length 61;
Best Local Similarity 81.2%; Pred. No. 0.00082;
Matches 13; Conservative 1; Mismatches 1; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15
Db 45 GCCSLPPCALSNPDYC 60

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RT "Alpha-conotoxin AUIB selectively blocks alpha3 beta4 nicotinic
RT acetylcholine receptors and nicotine-evoked norepinephrine release.";
RL J. Neurosci. 18:8571-8579(1998).
CC -|- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they
CC bind to the nicotinic acetylcholine receptors (nAChR) and thus
CC inhibit them. This peptide blocks mammalian nicotinic
CC acetylcholine receptors composed of alpha-3/beta-4 subunits.
CC -|- SUBCELLULAR LOCATION: Secreted.
CC -|- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -|- MASS SPECTROMETRY: MW=1725.6; METHOD=Electrospray; RANGE=1-16;
CC NOTE=Ref.1.
CC -|- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type
CC family.
DR PIR; A59045; A59045.
DR HSP; F56640; IDG2.
KW Acetylcholine receptor inhibitor; Amidation;
FT DISULFID 2 8
FT DISULFID 3 16
FT MOD_RES 16 16 Cysteine amide.
SQ SEQUENCE 16 AA; 1731 MW; 1E310FEB8FDC7001 CRC64;

Query Match 69.5%; Score 69.5; DB 1; Length 16;
Best Local Similarity 75.0%; Pred. No. 0.0058;
Matches 12; Conservative 0; Mismatches 3; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15
    ||||| ||||| |||||
DB 1 GCCSPPPCFATNSDYC 16
    ||||| ||||| |||||

RESULT 6
Q6PPBO PRELIMINARY; PRT; 68 AA.
AC Q6PPBO;
DT 05-JUL-2004 (TREMELrel. 27, Created)
DT 05-JUL-2004 (TREMELrel. 27, Last sequence update)
DT 05-JUL-2004 (TREMELrel. 27, Last annotation update)
DE Alpha conotoxin M11.1.
OS Conus miles.
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=69564;
RN [1]
RP SEQUENCE FROM N.A.
RA Han Y.H., Wang Q., Jiang H., Chen J.S., Qi C.W.;
RL Submitted (APR-2004) to the EMBL/GenBank/DBJ databases.
DR EMBL; AY588975; AAS99935.1; -.
DR InterPro; IPR009958; Toxin_8.
DR Pfam; PF07365; Toxin_8; 1.
SQ SEQUENCE 68 AA; 7296 MW; 31C166F007FC1439 CRC64;

Query Match 67.5%; Score 67.5; DB 2; Length 68;
Best Local Similarity 75.0%; Pred. No. 0.042;
Matches 12; Conservative 0; Mismatches 3; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15
    ||||| ||||| |||||
DB 49 GCCSNPPCYANNQAYC 64
    ||||| ||||| |||||

RESULT 7
Q6PTD1 PRELIMINARY; PRT; 65 AA.
AC Q6PTD1;
DT 05-JUL-2004 (TREMELrel. 27, Created)
DT 05-JUL-2004 (TREMELrel. 27, Last sequence update)
DT 05-JUL-2004 (TREMELrel. 27, Last annotation update)
DE Alpha conotoxin M1.1.
OS Conus narmoreus (Marble cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;

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RESULT 4
CXAL_CONEP STANDARD; PRT; 16 AA.
AC P56638;
DT 15-DEC-1998 (Rel. 37, Created)
DT 15-DEC-1998 (Rel. 37, Last sequence update)
DT 25-OCT-2004 (Rel. 45, Last annotation update)
DE Alpha-conotoxin Epi.
OS Conus episcopatus (Bishop's cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=88764;
RN [1]
RP X-RAY CRYSTALLOGRAPHY (1.1 ANGSTROMS).
RX MEDLINE=98376423; PubMed=9708977; DOI=10.1021/bi9806549;
RA Hu S.H., Loughnan M., Miller R., Weeks C.M., Blessing R.H.,
RA Alwood P.F., Lewis R.J., Martin J.L.;
RT "The 1.1-A resolution crystal structure of [Tyr15]Epi, a novel alpha-
RT conotoxin from Conus episcopatus, solved by direct methods.";
RL Biochemistry 37:11425-11433(1998).
CC -|- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they
CC bind to the nicotinic acetylcholine receptors (nAChR) and thus
CC inhibit them. This peptide blocks mammalian nicotinic
CC acetylcholine receptors composed of alpha-3/beta-2 and alpha-
CC 3/beta-4 subunits.
CC -|- SUBCELLULAR LOCATION: Secreted.
CC -|- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -|- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type
CC family.
DR PIR; A59042; A59042.
DR PDB; 1AQM; X-ray; A/B=1-16.
KW 3D-structure; Acetylcholine receptor inhibitor; Amidation; Neurotoxin;
KW Postsynaptic neurotoxin; Sulfation; Toxin.
FT DISULFID 2 8
FT DISULFID 3 16
FT MOD_RES 15 15 Sulfotyrosine.
FT MOD_RES 16 16 Cysteine amide.
FT HELIX 2 4
FT HELIX 6 11
FT TURN 13 16
SQ SEQUENCE 16 AA; 1792 MW; C63385F376C99B4C CRC64;

Query Match 70.5%; Score 70.5; DB 1; Length 16;
Best Local Similarity 75.0%; Pred. No. 0.0042;
Matches 12; Conservative 0; Mismatches 3; Indels 1; Gaps 1;

QY 1 GCCSPP-CAANNPDYC 15
    ||||| ||||| |||||
DB 1 GCCSDPRCMNNPDYC 16
    ||||| ||||| |||||

RESULT 5
CXAL_CONAL STANDARD; PRT; 16 AA.
AC P56639;
DT 15-DEC-1998 (Rel. 37, Created)
DT 15-DEC-1998 (Rel. 37, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Alpha-conotoxin AuiA.
OS Conus aulicus (Court cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=89437;
RN [1]
RP SEQUENCE, SYNTHESIS, AND MASS SPECTROMETRY.
RC TISSUE=Venom;
RX MEDLINE=99003392; PubMed=9786955;
RA Luo S., Kulak J.M., Cartier G.E., Jacobsen R.B., Yoshikami D.,
RA Olivera B.M., McIntosh J.M.;

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OC Neogastropoda; Conoidea; Conidae; Conus.

OX NCBI\_TaxID=42752;

RN [1] SEQUENCE FROM N.A.

RA Wang Q., Jiang H., Han Y.H., Chen J.S., Chi C.W.;

RL Submitted (MAR-2004) to the EMBL/GenBank/DBJ databases.

DR EMBL; AY580325; AAS93428.1; -

DR HSP; P56638; IAOM.

DR InterPro; IPR009958; Toxin\_8.

DR Pfam; PF07365; Toxin\_8; 1.

SQ SEQUENCE 65 AA; 6810 MW; 31ECF5763F599134 CRC64;

Query Match

Best Local Similarity 66.5%; Score 66.5; DB 2; Length 65;

Matches 11; Conservative 1; Mismatches 3; Indels 1; Gaps 1;

OY 1 GCCS-PPCAANNPDYC 15

Db 49 GCCSHFACSVNPNDC 64

RESULT 8

Q6PPB2

ID Q6PPB2 PRELIMINARY; PRT; 66 AA.

AC Q6PPB2;

DT 05-JUL-2004 (TREMELrel. 27, Created)

DT 05-JUL-2004 (TREMELrel. 27, Last sequence update)

DT 05-JUL-2004 (TREMELrel. 27, Last annotation update)

DE Alpha conotoxin QCL.4.

OS Conus quercinus (Oak cone).

OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;

OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;

OC Neogastropoda; Conoidea; Conidae; Conus.

OX NCBI\_TaxID=101313;

RN [1]

RA SEQUENCE FROM N.A.

RP Han Y.H., Wang Q., Jiang H., Chen J.S., Qi C.W.;

RL Submitted (APR-2004) to the EMBL/GenBank/DBJ databases.

DR EMBL; AY588973; AAS99933.1; -

DR HSP; P56638; IAOM.

DR InterPro; IPR009958; Toxin\_8.

DR Pfam; PF07365; Toxin\_8; 1.

SQ SEQUENCE 66 AA; 6505 MW; C49786F54DF8652 CRC64;

Query Match

Best Local Similarity 64.5%; Score 64.5; DB 2; Length 66;

Matches 11; Conservative 1; Mismatches 3; Indels 1; Gaps 1;

OY 1 GCCS-PPCAANNPDYC 15

Db 47 GCCSDPACAVSNPDIC 62

RESULT 9

CA3A3 CONAL

ID CA3A3 CONAL STANDARD; PRT; 16 AA.

AC P56641;

DT 15-DEC-1998 (Rel. 37, Created)

DT 15-DEC-1998 (Rel. 37, Last sequence update)

DT 05-JUL-2004 (Rel. 44, Last annotation update)

DE Alpha-conotoxin AUIB.

OS Conus aulicus (Court cone).

OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;

OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;

OC Neogastropoda; Conoidea; Conidae; Conus.

OX NCBI\_TaxID=89437;

RN [1]

RA SEQUENCE, SYNTHESIS, AND MASS SPECTROMETRY.

RC TISSUE=Venom;

RX MEDLINE=99003392; PubMed=978695;

RA Luo S., Kulak J.M., Cartier G.E., Jacobsen R.B., Yoshikami D.,

RT "Alpha-conotoxin AUIB selectively blocks alpha3 beta4 nicotinic

RT acetylcholine receptors and nicotine-evoked norepinephrine release.";

RL J. Neurosci. 18:8571-8579(1998).

CC -!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they

CC bind to the nicotinic acetylcholine receptors (nAChR) and thus

CC inhibit them. This peptide blocks mammalian nicotinic

CC acetylcholine receptors composed of alpha-3/beta-4 subunits.

CC -!- SUBCELLULAR LOCATION: Secreted.

CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.

CC -!- MASS SPECTROMETRY: MW=1667.6; METHOD=Electrospray; RANGE=1-16;

CC -!- NOTE=Ref.1.

CC -!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type

CC family.

DR PIR; CS9045; C59045.

DR HSP; P56640; 1DG2.

KW Acetylcholine receptor inhibitor; Amidation;

KW Direct protein sequencing; Neurotoxin; Postsynaptic neurotoxin; Toxin.

FT DISULFID 2 8

FT DISULFID 3 16

FT MOD RES 16 16 Cysteine amide.

SQ SEQUENCE 16 AA; 1673 MW; 1E310D3B8FDC7001 CRC64;

Query Match

Best Local Similarity 62.5%; Score 62.5; DB 1; Length 16;

Matches 11; Conservative 0; Mismatches 4; Indels 1; Gaps 1;

OY 1 GCCS-PPCAANNPDYC 15

Db 1 GCCSYPPCFATNSGYC 16

RESULT 10

CA2A2 CONAL

ID CA2A2 CONAL STANDARD; PRT; 15 AA.

AC P56640;

DT 15-DEC-1998 (Rel. 37, Created)

DT 15-DEC-1998 (Rel. 37, Last sequence update)

DT 25-OCT-2004 (Rel. 45, Last annotation update)

DE Alpha-conotoxin AUIB.

OS Conus aulicus (Court cone).

OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;

OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;

OC Neogastropoda; Conoidea; Conidae; Conus.

OX NCBI\_TaxID=89437;

RN [1] SEQUENCE, SYNTHESIS, AND MASS SPECTROMETRY.

RP TISSUE=Venom;

RX MEDLINE=99003392; PubMed=978695;

RA Luo S., Kulak J.M., Cartier G.E., Jacobsen R.B., Yoshikami D.,

RT "Alpha-conotoxin AUIB selectively blocks alpha3 beta4 nicotinic

RT acetylcholine receptors and nicotine-evoked norepinephrine release.";

RL J. Neurosci. 18:8571-8579(1998).

RN [2]

RP STRUCTURE BY NMR.

RX MEDLINE=20187585; PubMed=10722709; DOI=10.1074/jbc.275.12.8680;

RA Cho J.H., Mok K.H., Olivera B.M., McIntosh J.M., Park K.H., Han K.H.;

RT "Nuclear magnetic resonance solution conformation of alpha-conotoxin

RT AUIB, an alpha(3)beta(4) subtype-selective neuronal nicotinic

RT acetylcholine receptor antagonist.";

RL J. Biol. Chem. 275:8680-8685(2000).

RN [3]

RP STRUCTURE BY NMR.

RX MEDLINE=22359066; PubMed=12376538; DOI=10.1074/jbc.M208842200;

RA Dutton J.L., Bansal P.S., Hogg R.C., Adams D.J., Alewood P.F.,

RA Craik D.J.;

RT "A new level of conotoxin diversity, a non-native disulfide bond

RT connectivity in alpha-conotoxin AUIB reduces structural definition but

RT increases biological activity.";

RL J. Biol. Chem. 277:48849-48857(2002).

CC -!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they

CC bind to the nicotinic acetylcholine receptors (nAChR) and thus

CC inhibit them. This peptide blocks mammalian nicotinic

CC acetylcholine receptors composed of alpha-3/beta-4 subunits.

CC -1- SUBCELLULAR LOCATION: Secreted.  
 CC -1- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -1- MASS SPECTROMETRY: MW=1572.5; METHOD=Electrospray; RANGS=1-15;  
 CC NOTE=Ref.1.  
 CC -1- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type  
 CC family.  
 CC -1- CAUTION: The PIR database shows an incorrect sequence.  
 DR PIR: B59045; B59045.  
 DR FDB: 1DG2; NMR: A=1-15.  
 DR PDB: 1MXN; NMR: A=1-15.  
 DR FDB: 1MRP; NMR: A=1-15.  
 KW 3D-structure; Acetylcholine receptor inhibitor; Amidation;  
 KW Direct protein sequencing; Neurotoxin; Postsynaptic neurotoxin; Toxin.  
 FT DISULFID 2 8  
 FT MOD RES 3 15 Cysteine amide.  
 FT MOD RES 15 15  
 SQ SEQUENCE 15 AA; 1578 MW; 848FE95FDC700155 CRC64;  
 Query Match 61.5%; Score 61.5; DB 1; Length 15;  
 Best Local Similarity 78.8%; Pred. No. 0.07; 2; Indels 1; Gaps 1;  
 Matches 11; Conservative 0; Mismatches 2; Indels 1; Gaps 1;  
 QY 1 GCSCYPPCFATNPD 13  
 DB 1 GCSCYPPCFATNPD 14  
 RESULT 11  
 Q6PTD7 PRELIMINARY; PRT; 67 AA.  
 ID Q6PTD7  
 AC Q6PTD7  
 DT 05-JUL-2004 (TREMELrel. 27, Created)  
 DT 05-JUL-2004 (TREMELrel. 27, Last sequence update)  
 DT 05-JUL-2004 (TREMELrel. 27, Last annotation update)  
 DE Alpha conotoxin qcl.1.  
 OS Conus quercinus (Oak cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101313;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Han Y.H., Wang Q., Jiang H., Chen J.S., Chi C.W.;  
 RL Submitted (MAR-2004) to the EMBL/GenBank/DBJ databases.  
 DR EMBL: AY580319; AAS93422.1; -.  
 DR InterPro: IPR009958; Toxin\_8.  
 DR Pfam: PF07365; Toxin\_8; 1.  
 SQ SEQUENCE 67 AA; 7370 MW; 246DA52060D6DCC5 CRC64;  
 Query Match 61.5%; Score 61.5; DB 2; Length 67;  
 Best Local Similarity 66.7%; Pred. No. 0.28;  
 Matches 10; Conservative 1; Mismatches 3; Indels 1; Gaps 1;  
 QY 2 CC-SPPCAANNPDYC 15  
 DB 49 CCDDPPCKASNPDLG 63  
 RESULT 12  
 Q6PTD4 PRELIMINARY; PRT; 68 AA.  
 ID Q6PTD4  
 AC Q6PTD4  
 DT 05-JUL-2004 (TREMELrel. 27, Created)  
 DT 05-JUL-2004 (TREMELrel. 27, Last sequence update)  
 DT 05-JUL-2004 (TREMELrel. 27, Last annotation update)  
 DE Alpha conotoxin lpl.2.  
 OS Conus leopardus.  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101306;  
 RN [1]  
 RP SEQUENCE FROM N.A.

RA Han Y.H., Wang Q., Jiang H., Chen J.S., Chi C.W.;  
 RL Submitted (MAR-2004) to the EMBL/GenBank/DBJ databases.  
 DR EMBL: AY580322; AAS93425.1; -.  
 DR InterPro: IPR009958; Toxin\_8.  
 DR Pfam: PF07365; Toxin\_8; 1.  
 SQ SEQUENCE 68 AA; 7366 MW; EF271B9FF94C6CBE CRC64;  
 Query Match 61.5%; Score 61.5; DB 2; Length 68;  
 Best Local Similarity 62.5%; Pred. No. 0.29; 3; Indels 1; Gaps 1;  
 Matches 10; Conservative 2; Mismatches 3; Indels 1; Gaps 1;  
 QY 1 GCSCYPPCAANNPDYC 15  
 DB 49 GCSCYPPCAANNPDYC 64  
 RESULT 13  
 Q6PPB3 PRELIMINARY; PRT; 67 AA.  
 ID Q6PPB3  
 AC Q6PPB3  
 DT 05-JUL-2004 (TREMELrel. 27, Created)  
 DT 05-JUL-2004 (TREMELrel. 27, Last sequence update)  
 DT 05-JUL-2004 (TREMELrel. 27, Last annotation update)  
 DE Alpha conotoxin QCl.3.  
 OS Conus quercinus (Oak cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101313;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Han Y.H., Wang Q., Jiang H., Chen J.S., Chi C.W.;  
 RL Submitted (APR-2004) to the EMBL/GenBank/DBJ databases.  
 DR EMBL: AY588972; AAS99932.1; -.  
 DR InterPro: IPR009958; Toxin\_8.  
 DR Pfam: PF07365; Toxin\_8; 1.  
 SQ SEQUENCE 67 AA; 7417 MW; D3D776AA38BBBCCD CRC64;  
 Query Match 59.5%; Score 59.5; DB 2; Length 67;  
 Best Local Similarity 60.0%; Pred. No. 0.53;  
 Matches 9; Conservative 3; Mismatches 2; Indels 1; Gaps 1;  
 QY 2 CC-SPPCAANNPDYC 15  
 DB 49 CCDDPPCKSSNPDLG 63  
 RESULT 14  
 CXAC\_CONGE STANDARD; PRT; 40 AA.  
 ID CXAC\_CONGE  
 AC Q86RB2;  
 DT 29-MAR-2004 (Rel. 43, Created)  
 DT 29-MAR-2004 (Rel. 43, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Alpha-conotoxin GIC precursor (fragment).  
 OS Conus geographus (Geography cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=6491;  
 RN [1]  
 RP SEQUENCE FROM N.A., SYNTHESIS OF 21-36, AND MASS SPECTROMETRY.  
 RC TISSUE=Hepatopancreas;  
 RX MEDLINE=22206623; PubMed=12114524; DOI=10.1074/jbc.M205102200;  
 RA McIntosh J.M., Dowell C., Watkins M., Garrett J.E., Yoshikami D.,  
 RA Olivera B.M.;  
 RT "Alpha-conotoxin GIC from Conus geographus, a novel peptide antagonist  
 of nicotinic acetylcholine receptors.";  
 RL J. Biol. Chem. 277:33610-33615(2002).  
 CC -1- FUNCTION: Alpha-conotoxins bind to the nicotinic acetylcholine  
 receptors (nAChR) and inhibit them. In contrast to other alpha-  
 conotoxins, this peptide has no detectable activity at the muscle  
 subtype of receptor, but instead, it potentially targets neuronal

nACHR. This peptide reversibly blocks alpha-3/beta-2 subunits of nACHR.

-1- SUBCELLULAR LOCATION: Secreted.

-1- TISSUE SPECIFICITY: Expressed by the venom duct.

-1- MASS SPECTROMETRY: MW=1609.5; METHOD=LSI; RANGE=21-36; NOTE=Ref.1.

-1- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type family.

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EMBL; AF526267; AAO33169.1; -.

DR InterPro; IPR009958; Toxin\_8.

DR Pfam; PF07365; Toxin\_8; 1.

KW Acetylcholine receptor inhibitor; Amidation; Neurotoxin; Signal;

KW Toxin.

FT NON\_TER 1 1 ?

FT SIGNAL <1 ? Potential.

FT PROPEP ? 20

FT CHAIN 21 36 Alpha-conotoxin GIC.

FT DISULFID 22 28 By similarity.

FT DISULFID 23 36 By similarity.

FT MOD\_RES 36 36 Cysteine amide (G-37 provides amide group) (By similarity).

SQ SEQUENCE 40 AA; 4246 MW; 14143320230CC89D CRC64;

Query Match 54.5%; Score 54.5; DB 1; Length 40;

Best Local Similarity 62.5%; Pred. No. 1.6;

Matches 10; Conservative 0; Mismatches 5; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNPDYC 15

Db 21 GCCSHPCAGNQHIC 36

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RESULT 15

Q8C210 PRELIMINARY; PRT; 118 AA.

AC Q8C210;

DT 01-MAR-2003 (TRENBLrel. 23, Created)

DT 01-MAR-2003 (TRENBLrel. 23, Last sequence update)

DE Mus musculus B6-derived CD11 +ve dendritic cells cDNA, RIKEN full-length enriched library, clone:F730043M19 product:hypothetical protein, full insert sequence. (Fragment).

GN Name:F730043M19Rik;

OS Mus musculus (Mouse).

OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

OX NCBI\_TaxID=10090;

RN [1]

RP SEQUENCE FROM N.A.

RC STRAIN=C57BL/6J;

RX MEDLINE=99279253; PubMed=10349636; DOI=10.1016/S0076-6879(99)03004-9;

RA Carninci P., Hayashizaki Y.;

RT "High-efficiency full-length cDNA cloning.";

RL Meth. Enzymol. 303:19-44(1999).

RN [2]

RP SEQUENCE FROM N.A.

RC STRAIN=C57BL/6J;

RX MEDLINE=21085660; PubMed=11217851; DOI=10.1038/35055500;

RA RIKEN FANTOM Consortium;

RT "Functional annotation of a full-length mouse cDNA collection.";

RL Nature 409:685-690(2001).

RN [3]

RP SEQUENCE FROM N.A.

RC STRAIN=C57BL/6J;

RA The FANTOM Consortium,

RA the RIKEN Genome Exploration Research Group Phase I & II Team;

RT "Analysis of the mouse transcriptome based on functional annotation of 60,770 full-length cDNAs.";

RL Nature 420:563-573(2002).

RN [4]

RP SEQUENCE FROM N.A.

RC STRAIN=C57BL/6J;

RX MEDLINE=20499374; PubMed=11042159; DOI=10.1101/gr.145100;

RA Carninci P., Shibata Y., Hayatsu N., Sugahara Y., Shibata K., Itoh M., Kono H., Okazaki Y., Muramatsu M., Hayashizaki Y.;

RT "Normalization and subtraction of cap-trapper-selected cDNAs to prepare full-length cDNA libraries for rapid discovery of new genes.";

RL Genome Res. 10:1617-1630(2000).

RN [5]

RP SEQUENCE FROM N.A.

RC STRAIN=C57BL/6J;

RX MEDLINE=20530913; PubMed=11076861; DOI=10.1101/gr.152600;

RA Shibata K., Itoh M., Aizawa K., Nagaoaka S., Sasaki N., Carninci P., Kono H., Akiyama J., Nishi K., Kitsunai T., Tashiro H., Itoh M., Sumi N., Ishii Y., Nakamura S., Hazama M., Nishine T., Harada A., Yamamoto R., Matsumoto H., Sakaguchi S., Ikegami T., Kashiwagi K., Fujiwara S., Inoue K., Togawa Y., Izawa M., Ohara E., Watahiki M., Yoneda Y., Ishikawa T., Ozawa K., Tanaka T., Matsuura S., Kawai J., Okazaki Y., Muramatsu M., Inoue Y., Kira A., Hayashizaki Y.;

RT "RIKEN integrated sequence analysis (RISA) system-384-format sequencing pipeline with 384 multicapillary sequencer.";

RL Genome Res. 10:1757-1771(2000).

RN [6]

RP SEQUENCE FROM N.A.

RC STRAIN=C57BL/6J;

RX MEDLINE=20530913; PubMed=11076861; DOI=10.1101/gr.152600;

RA Adachi J., Aizawa K., Akimura T., Arakawa T., Bono H., Carninci P., Fukuda S., Furuno M., Hanagaki T., Hara A., Hashizume W., Hayashida K., Hayatsu N., Hiramoto K., Hiraoka T., Hirozane T., Hori F., Imotani K., Ishii Y., Itoh M., Kagawa I., Kasukawa T., Katoh H., Kawai J., Kojima Y., Kondo S., Kono H., Kouda M., Koya S., Kurihara C., Matsuyama T., Miyazaki A., Murata M., Nakamura M., Nishi K., Nomura K., Numazaki R., Ohno M., Ohsato N., Okazaki Y., Saito R., Saitoh H., Sakai C., Sakai K., Sakazume N., Sano H., Sasaki D., Shibata K., Shinagawa A., Shiraki T., Sogabe Y., Tagami M., Tagawa A., Takahashi F., Takaku-Akahira S., Takeda Y., Tanaka T., Tomaru A., Toya T., Yasunishi A., Muramatsu M., Hayashizaki Y.;

RL Submitted (APR-2002) to the EMBL/GenBank/DBJ databases.

DR EMBL; AK089514; BAC40910.1; -.

DR MGD; MGI:2443237; F730043M19Rik.

KW Hypothetical protein.

FT NON\_TER 1

SQ SEQUENCE 118 AA; 12151 MW; A3F654414D357524 CRC64;

Query Match 54.5%; Score 54.5; DB 2; Length 118;

Best Local Similarity 69.2%; Pred. No. 4.4;

Matches 9; Conservative 2; Mismatches 1; Indels 1; Gaps 1;

QY 1 GCCS-PPCAANNP 12

Db 31 GCCAPPPCPASNP 43

Search completed: March 23, 2005, 00:16:46

Job time : 41.0495 secs



RESULT 4  
 CXAL CONAL STANDARD; PRT; 16 AA.  
 ID CXAL CONAL STANDARD; PRT; 16 AA.  
 AC P56639;  
 DT 15-DEC-1998 (Rel. 37, Created)  
 DT 15-DEC-1998 (Rel. 37, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Alpha-conotoxin AuiA.  
 OS Conus aulicus (Court cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=89437;  
 RN [1]  
 RQ SEQUENCE, SYNTHESIS, AND MASS SPECTROMETRY.  
 RS MEDLINE=99003392; PubMed=9786965;  
 RA Luo S., Kulak J.M., Cartier G.E., Jacobsen R.B., Yoshikami D.,  
 RA Olivera B.M., McIntosh J.M.;  
 RT "Alpha-conotoxin AuiB selectively blocks alpha3 beta4 nicotinic  
 RT acetylcholine receptors and nicotine-evoked norepinephrine release.";  
 RL J. Neurosci. 18:8571-8579(1998).  
 CC -1- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they  
 CC bind to the nicotinic acetylcholine receptors (nAChR) and thus  
 CC inhibit them. This peptide blocks mammalian nicotinic  
 CC acetylcholine receptors composed of alpha-3/beta-4 subunits.  
 CC -1- SUBCELLULAR LOCATION: Secreted.  
 CC -1- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -1- MASS SPECTROMETRY: MW=1725.6; METHOD=Electrospray; RANGE=1-16;  
 CC NOTE=Ref.1.  
 CC -1- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type  
 CC family.  
 DR HSP; A59045; A59045.  
 DR HSP; P56640; 1DG2.  
 KW Acetylcholine receptor inhibitor; Amidation;  
 KW Direct protein sequencing; Neurotoxin; Postsynaptic neurotoxin; Toxin.  
 FT DISULFID 2 8  
 FT DISULFID 3 16  
 FT MOD RES 16 16 Cysteine amide.  
 SQ SEQUENCE 16 AA; 1731 MW; 1E310FEB8FDC7001 CRC64;  
 Query Match 73.5%; Score 75; DB 1; Length 16;  
 Best Local Similarity 68.8%; Pred. No. 0.00075;  
 Matches 11; Conservative 1; Mismatches 4; Indels 0; Gaps 0;  
 QY 1 GCCSLPPCALSNPDYC 16  
 DB 1 GCCSYPPCFATNSDYC 16  
 RESULT 5  
 Q6PPB2 PRELIMINARY; PRT; 66 AA.  
 ID Q6PPB2 PRELIMINARY; PRT; 66 AA.  
 AC Q6PPB2;  
 DT 05-JUL-2004 (TrEMBLrel. 27, Created)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)  
 DE Alpha conotoxin QCL.4.  
 OS Conus quercinus (Oak cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101313;  
 RN [1]  
 RQ SEQUENCE FROM N.A.  
 RA Han Y.H., Wang Q., Jiang H., Chen J.S., Qi C.W.;  
 RL Submitted (APR-2004) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AY588973; AAS99933.1; --  
 DR HSP; P56638; 1A0M.  
 DR InterPro; IPR009958; Toxin\_8.  
 DR Pfam; PF07365; Toxin\_8; 1.

SQ SEQUENCE 66 AA; 6905 MW; C49786F54DFP8652 CRC64;  
 Query Match 73.5%; Score 75; DB 2; Length 66;  
 Best Local Similarity 75.0%; Pred. No. 0.0029;  
 Matches 12; Conservative 1; Mismatches 3; Indels 0; Gaps 0;  
 QY 1 GCCSLPPCALSNPDYC 16  
 DB 47 GCCSDPACAVSNPDIC 62  
 RESULT 6  
 CXAL CONEP STANDARD; PRT; 16 AA.  
 ID CXAL CONEP STANDARD; PRT; 16 AA.  
 AC P56638;  
 DT 15-DEC-1998 (Rel. 37, Created)  
 DT 15-DEC-1998 (Rel. 37, Last sequence update)  
 DT 25-OCT-2004 (Rel. 45, Last annotation update)  
 DE Alpha-conotoxin Epi.  
 OS Conus episcopatus (Bishop's cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=88764;  
 RN [1]  
 RQ X-RAY CRYSTALLOGRAPHY (1.1 ANGSTROMS).  
 RS MEDLINE=98376423; PubMed=9708977; DOI=10.1021/bi9806549;  
 RA Hu S.H., Loughnan M., Miller R., Weeks C.M., Blessing R.H.,  
 RA Alewood P.F., Lewis R.J., Martin J.L.;  
 RT "The 1.1-A resolution crystal structure of [Tyr15]Epi, a novel alpha-  
 RT conotoxin from Conus episcopatus, solved by direct methods.";  
 RL Biochemistry 37:11425-11433(1998).  
 CC -1- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they  
 CC bind to the nicotinic acetylcholine receptors (nAChR) and thus  
 CC inhibit them. This peptide blocks mammalian nicotinic  
 CC acetylcholine receptors composed of alpha-3/beta-2 and alpha-  
 CC 3/beta-4 subunits.  
 CC -1- SUBCELLULAR LOCATION: Secreted.  
 CC -1- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -1- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type  
 CC family.  
 DR PIR; A59042; A59042.  
 DR PDB; 1A0M; X-ray; A/B=1-16.  
 KW 3D-structure; Acetylcholine receptor inhibitor; Amidation; Neurotoxin;  
 KW Postsynaptic neurotoxin; Sulfation; Toxin.  
 FT DISULFID 2 8  
 FT DISULFID 3 16  
 FT MOD RES 15 15 Sulfotyrosine.  
 FT MOD RES 16 16 Cysteine amide.  
 FT HELIX 2 4  
 FT HELIX 6 11  
 FT TURN 13 16  
 SQ SEQUENCE 16 AA; 1792 MW; C63385F376C99B4C CRC64;  
 Query Match 72.5%; Score 74; DB 1; Length 16;  
 Best Local Similarity 68.8%; Pred. No. 0.001;  
 Matches 11; Conservative 2; Mismatches 3; Indels 0; Gaps 0;  
 QY 1 GCCSLPPCALSNPDYC 16  
 DB 1 GCCSDPRCNMNPDYC 16  
 RESULT 7  
 Q6PTD1 PRELIMINARY; PRT; 65 AA.  
 ID Q6PTD1 PRELIMINARY; PRT; 65 AA.  
 AC Q6PTD1;  
 DT 05-JUL-2004 (TrEMBLrel. 27, Created)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)  
 DE Alpha conotoxin Mrl.1.  
 OS Conus marmoreus (Marble cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;

OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=42752;  
 RN [1]  
 RA SEQUENCE FROM N.A.  
 RP Wang Q., Jiang H., Han Y.H., Chen J.S., Chi C.W.;  
 RL Submitted (MAR-2004) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AY580325; AAS93428.1; -  
 DR HSSP; P56638; IA0M.  
 DR InterPro; IPR009958; Toxin.8.  
 DR Pfam; PF07365; Toxin.8; 1.  
 SQ SEQUENCE 65 AA; 6810 MW; 31ECF5763F599134 CRC64;

Query Match 68.6%; Score 70; DB 2; Length 65;  
 Best Local Similarity 62.5%; Pred. No. 0.015;  
 Matches 10; Conservative 3; Mismatches 3; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
 ||||| : : : : :  
 Db 49 GCCSHFACSVNPNPIC 64

## RESULT 8

CXA3\_CONAL STANDARD; PRT; 16 AA.  
 AC P56641;  
 DT 15-DEC-1998 (Rel. 37, Created)  
 DT 15-DEC-1998 (Rel. 37, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Alpha-conotoxin AuIC.  
 OS Conus alicus (Court cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=89437;  
 RN [1]  
 RA SEQUENCE, SYNTHESIS, AND MASS SPECTROMETRY.  
 RP TISSUE=Venom;  
 RX MEDLINE=99003392; PubMed=9786965;  
 RA Luo S., Kulak J.M., Cartier G.E., Jacobsen R.B., Yoshikami D.,  
 RA Olivera B.M., McIntosh J.M.;  
 RT "Alpha-conotoxin AuIB selectively blocks alpha3 beta4 nicotinic  
 RT acetylcholine receptors and nicotine-evoked norepinephrine release."  
 RL J. Neurosci. 18:8571-8579(1998).  
 CC -1- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they  
 CC bind to the nicotinic acetylcholine receptors (nAChR) and thus  
 CC inhibit them. This peptide blocks mammalian nicotinic  
 CC acetylcholine receptors composed of alpha-3/beta-4 subunits.  
 CC -1- SUBCELLULAR LOCATION: Secreted.  
 CC -1- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -1- MASS SPECTROMETRY: MW=1667.6; METHOD=Electrospray; RANGE=1-16;  
 CC NOTE=Ref.1.  
 CC -1- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type  
 CC family.  
 DR PIR; C59045; C59045.  
 DR HSSP; P56640; IDG2.  
 DR Acetylcholine receptor inhibitor; Amidation;  
 KW Direct protein sequencing; Neurotoxin; Postsynaptic neurotoxin; Toxin.  
 FT DISULFID 2 8  
 FT DISULFID 3 16  
 FT MOD RES 16 16 Cysteine amide.  
 SQ SEQUENCE 16 AA; 1673 MW; 1E310D3B8FDC7001 CRC64;

Query Match 66.7%; Score 68; DB 1; Length 16;  
 Best Local Similarity 62.5%; Pred. No. 0.0073;  
 Matches 10; Conservative 1; Mismatches 5; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPDYC 16  
 ||||| : : : : :  
 Db 1 GCCSYPPCFATNSGYC 16

## RESULT 9

CXA2\_CONAL STANDARD; PRT; 15 AA.  
 AC P56640;  
 DT 15-DEC-1998 (Rel. 37, Created)  
 DT 15-DEC-1998 (Rel. 37, Last sequence update)  
 DT 25-OCT-2004 (Rel. 45, Last annotation update)  
 DE Alpha-conotoxin AuIB.  
 OS Conus alicus (Court cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=89437;  
 RN [1]  
 RA SEQUENCE, SYNTHESIS, AND MASS SPECTROMETRY.  
 RP TISSUE=Venom;  
 RX MEDLINE=99003392; PubMed=9786965;  
 RA Luo S., Kulak J.M., Cartier G.E., Jacobsen R.B., Yoshikami D.,  
 RA Olivera B.M., McIntosh J.M.;  
 RT "Alpha-conotoxin AuIB selectively blocks alpha3 beta4 nicotinic  
 RT acetylcholine receptors and nicotine-evoked norepinephrine release."  
 RL J. Neurosci. 18:8571-8579(1998).  
 CC -1- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they  
 CC bind to the nicotinic acetylcholine receptors (nAChR) and thus  
 CC inhibit them. This peptide blocks mammalian nicotinic  
 CC acetylcholine receptors composed of alpha-3/beta-4 subunits.  
 CC -1- SUBCELLULAR LOCATION: Secreted.  
 CC -1- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -1- MASS SPECTROMETRY: MW=1572.5; METHOD=Electrospray; RANGE=1-15;  
 CC NOTE=Ref.1.  
 CC -1- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type  
 CC family.  
 DR PIR; B59045; B59045.  
 DR PDB; IDG2; NMR; A=1-15.  
 DR PDB; 1MXN; A=1-15.  
 DR PDB; 1MKP; NMR; A=1-15.  
 KW 3D-structure; Acetylcholine receptor inhibitor; Amidation;  
 KW Direct protein sequencing; Neurotoxin; Postsynaptic neurotoxin; Toxin.  
 FT DISULFID 2 8  
 FT DISULFID 3 15 Cysteine amide.  
 FT MOD RES 15 15  
 SQ SEQUENCE 15 AA; 1578 MW; 84FE95FDC700155 CRC64;

Query Match 65.7%; Score 67; DB 1; Length 15;  
 Best Local Similarity 71.4%; Pred. No. 0.0094;  
 Matches 10; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 GCCSLPPCALSNPD 14  
 ||||| : : : : :  
 Db 1 GCCSYPPCFATNED 14

RESULT 10  
 Q6PPB3 PRELIMINARY; PRT; 67 AA.  
 ID Q6PPB3  
 AC Q6PPB3;

DT 05-JUL-2004 (Tremblrel. 27, Created)  
 DT 05-JUL-2004 (Tremblrel. 27, Last sequence update)  
 DT 05-JUL-2004 (Tremblrel. 27, Last annotation update)  
 DE Alpha conotoxin Qc1.3  
 OS Conus quercinus (Oak cone)  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101313;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Han Y.H., Wang Q., Jiang H., Chen J.S., Qi C.W.;  
 RL Submitted (APR-2004) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AY588972; AAS9932.1; -  
 DR InterPro; IPR00958; Toxin\_8.  
 DR Pfam; PF07365; Toxin\_8; 1.  
 DR SEQUENCE 67 AA; 7417 MW; D3D776AA38BBBCCD CRC64;  
 SQ

Query Match 64.7%; Score 66; DB 2; Length 67;  
 Best Local Similarity 66.7%; Pred. No. 0.055;  
 Matches 10; Conservative 0; Mismatches 5; Indels 0; Gaps 0;

Qy 2 CCSPPCALSNPDYC 16  
 Db 49 CCNPPCKSSNPDLG 63

## RESULT 11

O6PTD7  
 ID Q6PTD7 PRELIMINARY; PRT; 67 AA.  
 AC Q6PTD7;  
 DT 05-JUL-2004 (Tremblrel. 27, Created)  
 DT 05-JUL-2004 (Tremblrel. 27, Last sequence update)  
 DT 05-JUL-2004 (Tremblrel. 27, Last annotation update)  
 DE Alpha conotoxin qc1.1  
 OS Conus quercinus (Oak cone)  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101313;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Han Y.H., Wang Q., Jiang H., Chen J.S., Chi C.W.;  
 RL Submitted (MAR-2004) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AY580319; AAS93422.1; -  
 DR InterPro; IPR00958; Toxin\_8.  
 DR Pfam; PF07365; Toxin\_8; 1.  
 DR SEQUENCE 67 AA; 7370 MW; 246DA52060D6DCC5 CRC64;  
 SQ

Query Match 63.7%; Score 65; DB 2; Length 67;  
 Best Local Similarity 66.7%; Pred. No. 0.076;  
 Matches 10; Conservative 0; Mismatches 5; Indels 0; Gaps 0;

Qy 2 CCSPPCALSNPDYC 16  
 Db 49 CCPDPPCKASNPDLG 63

## RESULT 12

O6PFB0  
 ID Q6PFB0 PRELIMINARY; PRT; 68 AA.  
 AC Q6PFB0;  
 DT 05-JUL-2004 (Tremblrel. 27, Created)  
 DT 05-JUL-2004 (Tremblrel. 27, Last sequence update)  
 DT 05-JUL-2004 (Tremblrel. 27, Last annotation update)  
 DE Alpha conotoxin Mil.1.  
 OS Conus miles.  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=69564;  
 RN [1]  
 RP SEQUENCE FROM N.A.

RA Han Y.H., Wang Q., Jiang H., Chen J.S., Qi C.W.;  
 RL Submitted (APR-2004) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AY588975; AAS9935.1; -  
 DR InterPro; IPR00958; Toxin\_8.  
 DR Pfam; PF07365; Toxin\_8; 1.  
 DR SEQUENCE 68 AA; 7296 MW; 31C166F007FC1439 CRC64;  
 SQ

Query Match 63.7%; Score 65; DB 2; Length 68;  
 Best Local Similarity 62.5%; Pred. No. 0.077;  
 Matches 10; Conservative 1; Mismatches 5; Indels 0; Gaps 0;

Qy 1 GCCSLPPCALSNPDYC 16  
 Db 49 GCCSNPPCYANNQAYC 64

## RESULT 13

O6PTD4  
 ID Q6PTD4 PRELIMINARY; PRT; 68 AA.  
 AC Q6PTD4;  
 DT 05-JUL-2004 (Tremblrel. 27, Created)  
 DT 05-JUL-2004 (Tremblrel. 27, Last sequence update)  
 DT 05-JUL-2004 (Tremblrel. 27, Last annotation update)  
 DE Alpha conotoxin lpl.2.  
 OS Conus leopardus.  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101306;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Han Y.H., Wang Q., Jiang H., Chen J.S., Chi C.W.;  
 RL Submitted (MAR-2004) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AY580322; AAS93425.1; -  
 DR InterPro; IPR00958; Toxin\_8.  
 DR Pfam; PF07365; Toxin\_8; 1.  
 DR SEQUENCE 68 AA; 7286 MW; EF271E9FF94C6CBE CRC64;  
 SQ

Query Match 63.7%; Score 65; DB 2; Length 68;  
 Best Local Similarity 56.3%; Pred. No. 0.077;  
 Matches 9; Conservative 4; Mismatches 3; Indels 0; Gaps 0;

Qy 1 GCCSLPPCALSNPDYC 16  
 Db 49 GCCSHDACSNNPVC 64

## RESULT 14

O8C210  
 ID Q8C210 PRELIMINARY; PRT; 118 AA.  
 AC Q8C210;  
 DT 01-MAR-2003 (Tremblrel. 23, Created)  
 DT 01-MAR-2003 (Tremblrel. 23, Last sequence update)  
 DT 01-JUN-2003 (Tremblrel. 24, Last annotation update)  
 DE Mus musculus B6-derived Cdl +ve dendritic cells cDNA, RIKEN full-length enriched library, clone:F730043M19 product:hypothetical protein, full insert sequence. (Fragment).  
 GN Name=F730043M19Rik;  
 OS Mus musculus (Mouse).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus.  
 OX NCBI\_TaxID=10090;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=C57BL/6J;  
 RX MEDLINE=99279253; PubMed=10349636; DOI=10.1016/S0076-6879(99)03004-9;  
 RA Carninci P., Hayashizaki Y.;  
 RT "High-efficiency full-length cDNA cloning."  
 RL Meth. Enzymol. 303:19-44(1999).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=C57BL/6J;  
 RX MEDLINE=21085660; PubMed=11217851; DOI=10.1038/35055500;



GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:16:20 ; Search time 8.41584 Seconds  
(without alignments)  
171.492 Million cell updates/sec

Title: US-09-787-082a-21

Perfect score: 100

Sequence: 1 GCCSPPCAANNPDYC 15

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues

Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :

PIR 79: \*  
1: Pirl: \*  
2: Pirl2: \*  
3: Pirl3: \*  
4: Pirl4: \*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	89.5	89.5	16	2 A54877	alpha-conotoxin Pn
2	79.5	79.5	16	2 B54877	alpha-conotoxin Pn
3	70.5	70.5	16	2 A59042	alpha-conotoxin Ep
4	69.5	69.5	16	2 A59045	alpha-conotoxin Au
5	62.5	62.5	16	2 C59045	alpha-conotoxin Au
6	53.5	53.5	15	2 B59045	alpha-conotoxin Au
7	52	52.0	260	2 T23033	hypothetical prote
8	49.5	49.5	2476	2 T34022	zonadhesin - pig
9	48	48.0	367	2 T02767	cinnamyl-alcohol d
10	48	48.0	367	2 T02990	cinnamyl-alcohol d
11	48	48.0	791	2 T28815	hypothetical prote
12	47.5	47.5	250	2 T16342	hypothetical prote
13	46	46.0	47	2 F81118	hypothetical prote
14	46	46.0	74	2 T33087	hypothetical prote
15	46	46.0	316	2 T31880	hypothetical prote
16	46	46.0	334	2 A48151	sperm tail protein
17	46	46.0	764	2 A35956	thytotropin recept
18	45	45.0	179	2 T19557	hypothetical prote
19	45	45.0	358	2 D72637	hypothetical prote
20	45	45.0	519	2 S39893	rnfc protein - Rho
21	45	45.0	716	2 JQ1366	polyprotein - hepa
22	45	45.0	925	2 T18747	probable potassium
23	45	45.0	1042	2 A57534	mycin SAC (clone L
24	44	44.0	165	2 S68776	myogenin - rainbow
25	44	44.0	172	2 T21131	hypothetical prote
26	44	44.0	761	2 T33816	hypothetical prote
27	44	44.0	764	2 A40077	thytotropin recept
28	44	44.0	1034	2 JC5598	mucin - rat
29	44	44.0	1680	2 A43434	furin (BC 3.4.21.7

30	43.5	43.5	74	2 T33086	hypothetical prote
31	43.5	43.5	74	2 T33085	hypothetical prote
32	43.5	43.5	1046	2 A26838	prestalk protein p
33	43.5	43.5	1330	2 S49010	embryonic receptor
34	43.5	43.5	1333	2 I78875	receptor tyrosine
35	43.5	43.5	1336	2 I60598	Fit-1 tyrosine kin
36	43.5	43.5	1338	2 S09982	protein-tyrosine k
37	43	43.0	197	2 E84606	probable WRKY-type
38	43	43.0	348	2 B48435	cysteine proteinas
39	43	43.0	407	2 S22586	homeotic protein E
40	43	43.0	416	2 S12541	evxi protein - mur
41	43	43.0	465	2 A96553	probable myrosinas
42	43	43.0	477	2 T46917	hypothetical prote
43	43	43.0	496	2 G95516	hypothetical prote
44	43	43.0	1650	2 S53457	dominant autoantig
45	43	43.0	4660	2 T42737	gp330 protein prec

ALIGNMENTS

RESULT 1

A54877

alpha-conotoxin PnIA [validated] - cone shell (Conus pennaceus)

N:Alternate names: alpha-CTX-PnIA

C:Species: Conus pennaceus

C>Date: 19-Mar-1997 #sequence\_revision 25-Apr-1997 #text\_change 09-Jul-2004

C:Accession: A54877

R:Fainzilber, M.; Hasson, A.; Oren, R.; Burlingame, A.L.; Gordon, D.; Spira, M.E.; Zlotki

Biochemistry 33, 9523-9529, 1994

A:Title: New mollusc-specific alpha-conotoxins block Aplysia neuronal acetylcholine rece

A:Reference number: A54877; MUID:94347719; PMID:8068627

A:Accession: A54877

A:Molecule type: protein

A:Residues: 1-16 <FAI>

A:Cross-references: UNIPROT:P50984

R:Hu, S.H.; Gehrmann, J.; Guddat, L.W.; Alewood, P.F.; Craik, D.J.; Martin, J.L.

submitted to the Brookhaven Protein Data Bank, January 1996

A:Reference number: A6355; PDB:IPEN

C:Contents: annotation; X-ray crystallography, 1.1 angstroms; residues 1-16

C:Comment: This alpha-conotoxin, as an acetylcholine receptor inhibitor, is a postsynapti

C:Superfamily: alpha-conotoxin

C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neuro

F:2-8,3-16/Disulfide bonds: #status experimental

F:16/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match

Best Local Similarity 89.5%; Score 89.5; DB 2; Length 16;

Matches 15; Conservative 0; Mismatches 0; Indels 1; Gaps 1;

QY 1 GCCSPPCAANNPDYC 15

|||||

Db 1 GCCSLPPCAANNPDYC 16

RESULT 2

B54877

alpha-conotoxin PnIB - cone shell (Conus pennaceus)

C:Species: Conus pennaceus

C>Date: 19-Mar-1997 #sequence\_revision 25-Apr-1997 #text\_change 09-Jul-2004

C:Accession: B54877

R:Fainzilber, M.; Hasson, A.; Oren, R.; Burlingame, A.L.; Gordon, D.; Spira, M.E.; Zlotki

Biochemistry 33, 9523-9529, 1994

A:Title: New mollusc-specific alpha-conotoxins block Aplysia neuronal acetylcholine rece

A:Reference number: A54877; MUID:94347719; PMID:8068627

A:Accession: B54877

A:Molecule type: protein

A:Residues: 1-16 <FAI>

A:Cross-references: UNIPROT:P50985

C:Comment: This alpha-conotoxin, as an acetylcholine receptor inhibitor, is a postsynapti

C:Superfamily: alpha-conotoxin

C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neuro

F:2-8,3-16/Disulfide bonds: #status experimental

F:16/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 79.5%; Score 79.5; DB 2; Length 16;  
 Best Local Similarity 81.2%; Pred. No. 0.0002;  
 Matches 13; Conservative 1; Mismatches 1; Indels 1; Gaps 1;  
 QY 1 GCCSPPCAANNPDYC 15  
 ||||| ||||| : |||||  
 DB 1 GCCSLPPCALSNPDYC 16

## RESULT 3

AS9042  
 alpha-conotoxin Epi - cone shell (Conus episcopatus)  
 C:Species: Conus episcopatus (bishop's cone)  
 C>Date: 23-Jul-1999 #sequence\_revision 23-Jul-1999 #text\_change 09-Jul-2004  
 C:Accession: AS9042  
 R:Loughnan, M.; Bond, T.; Atkins, A.; Cuevas, J.; Adams, D.J.; Broxton, N.M.; Livett, B.  
 J. Biol. Chem. 273, 15667-15674, 1998  
 A:Title: Alpha-conotoxin Epi, a novel sulfated peptide from Conus episcopatus that select  
 A:Reference number: AS9042; MUID:98288307; PMID:9624161  
 A:Accession: AS9042  
 A:Status: preliminary  
 A:Molecule type: protein  
 A:Residues: 1-16 <LOU>  
 A:Cross-references: UNIPROT:P56638  
 C:Superfamily: alpha-conotoxin  
 C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neurot  
 F:1-16/Product: alpha-conotoxin Epi #status experimental <MAT>  
 F:2-8,3-16/Disulfide bonds: #status experimental  
 F:15/Binding site: sulfate (Tyr) (covalent) #status experimental  
 F:16/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 70.5%; Score 70.5; DB 2; Length 16;  
 Best Local Similarity 75.0%; Pred. No. 0.0031;  
 Matches 12; Conservative 0; Mismatches 3; Indels 1; Gaps 1;

QY 1 GCCSPPCAANNPDYC 15  
 ||||| ||||| : |||||  
 DB 1 GCCSDPRCMMNPDYC 16

## RESULT 4

AS9045  
 alpha-conotoxin AuiA - cone shell (Conus aulicus)  
 C:Species: Conus aulicus (court cone)  
 C>Date: 23-Jul-1999 #sequence\_revision 23-Jul-1999 #text\_change 09-Jul-2004  
 C:Accession: AS9045  
 R:Luo, S.; Kulak, J.M.; Cartier, G.E.; Jacobsen, R.B.; Yoshikami, D.; Olivera, B.M.; McI  
 J. Neurosci. 18, 8571-8579, 1998  
 A:Title: Alpha-conotoxin AuiB selectively blocks alpha3beta4 nicotinic acetylcholine rec  
 A:Reference number: AS9045; MUID:99003392; PMID:9786965  
 A:Accession: AS9045  
 A:Status: preliminary  
 A:Molecule type: protein  
 A:Residues: 1-16 <LUO>  
 A:Cross-references: UNIPROT:P56639

C:Superfamily: alpha-conotoxin  
 C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neurot  
 F:1-16/Product: alpha-conotoxin AuiA #status experimental <MAT>  
 F:2-8,3-16/Disulfide bonds: #status experimental  
 F:16/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 69.5%; Score 69.5; DB 2; Length 16;  
 Best Local Similarity 75.0%; Pred. No. 0.0041;  
 Matches 12; Conservative 0; Mismatches 3; Indels 1; Gaps 1;

QY 1 GCCSPPCAANNPDYC 15  
 ||||| ||||| : |||||  
 DB 1 GCCSYPPCFATNSDYC 16

## RESULT 5

## C59045

alpha-conotoxin AuiC - cone shell (Conus aulicus)  
 C:Species: Conus aulicus (court cone)  
 C>Date: 23-Jul-1999 #sequence\_revision 23-Jul-1999 #text\_change 09-Jul-2004  
 C:Accession: C59045  
 R:Luo, S.; Kulak, J.M.; Cartier, G.E.; Jacobsen, R.B.; Yoshikami, D.; Olivera, B.M.; McI  
 J. Neurosci. 18, 8571-8579, 1998  
 A:Title: Alpha-conotoxin AuiB selectively blocks alpha3beta4 nicotinic acetylcholine rec  
 A:Reference number: AS9045; MUID:99003392; PMID:9786965  
 A:Accession: C59045  
 A:Status: preliminary  
 A:Molecule type: protein  
 A:Residues: 1-16 <LUO>  
 A:Cross-references: UNIPROT:P56641

C:Superfamily: alpha-conotoxin  
 C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neurot  
 F:1-16/Product: alpha-conotoxin AuiC #status experimental <MAT>  
 F:2-8,3-16/Disulfide bonds: #status experimental  
 F:16/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 62.5%; Score 62.5; DB 2; Length 16;  
 Best Local Similarity 68.8%; Pred. No. 0.034;  
 Matches 11; Conservative 0; Mismatches 4; Indels 1; Gaps 1;

QY 1 GCCSPPCAANNPDYC 15  
 ||||| ||||| : |||||  
 DB 1 GCCSYPPCFATNSGYC 16

## RESULT 6

BS9045  
 alpha-conotoxin AuiB - cone shell (Conus aulicus)  
 C:Species: Conus aulicus (court cone)  
 C>Date: 23-Jul-1999 #sequence\_revision 23-Jul-1999 #text\_change 23-Jul-1999  
 C:Accession: BS9045  
 R:Luo, S.; Kulak, J.M.; Cartier, G.E.; Jacobsen, R.B.; Yoshikami, D.; Olivera, B.M.; McI  
 J. Neurosci. 18, 8571-8579, 1998  
 A:Title: Alpha-conotoxin AuiB selectively blocks alpha3beta4 nicotinic acetylcholine rec  
 A:Reference number: AS9045; MUID:99003392; PMID:9786965  
 A:Accession: BS9045  
 A:Status: preliminary  
 A:Molecule type: protein  
 A:Residues: 1-15 <LUO>

C:Superfamily: alpha-conotoxin  
 C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neurot  
 F:1-15/Product: alpha-conotoxin AuiB #status experimental <MAT>  
 F:2-8,3-15/Disulfide bonds: #status experimental  
 F:15/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 53.5%; Score 53.5; DB 2; Length 15;  
 Best Local Similarity 71.4%; Pred. No. 0.5;  
 Matches 10; Conservative 0; Mismatches 3; Indels 1; Gaps 1;

QY 1 GCCSPPCAANNPD 13  
 ||||| ||||| : |||||  
 DB 1 GCCSYPPCFATNSD 14

## RESULT 7

T23033  
 hypothetical protein H02K04.1 - Caenorhabditis elegans  
 C:Species: Caenorhabditis elegans  
 C>Date: 15-Oct-1999 #sequence\_revision 15-Oct-1999 #text\_change 09-Jul-2004  
 C:Accession: T23033; T27666  
 R:White, S.

submitted to the EMBL Data Library, June 1998  
 A:Reference number: Z19657  
 A:Accession: T23033  
 A:Status: preliminary; translated from GB/EMBL/DBJ  
 A:Molecule type: DNA  
 A:Residues: 1-260 <WIL>  
 A:Cross-references: UNIPROT:O45993; EMBL:AL023813; PIDN:CAA19425.1; GSPDB:GN00023; CESP:  
 A:Experimental source: clone H02K04

R:Basham, V.  
submitted to the EMBL Data Library, October 1996  
A:Reference number: Z20401  
A:Accession: T27666  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: DNA  
A:Residues: 1-260 <W12>  
A:Cross-references: EMBL:Z81142; PIDN:CAB03511.1; GSPDB:GN00023; CESP:H02K04.1  
A:Experimental source: clone ZK1037  
C:Genetics:  
A:Gene: CESP:H02K04.1  
A:Map position: 5  
A:Introns: 22/3; 81/1; 112/3; 173/1; 204/3

Query Match 52.0%; Score 52; DB 2; Length 260;  
Best Local Similarity 50.0%; Pred. No. 7.3;  
Matches 7; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

QY 2 CCSPCAANNPDYC 15  
DB 102 CAAPPCAVTDPVVC 115

RESULT 8  
T34022  
zonadhesin - pig  
C:Species: Sus scrofa domestica (domestic pig)  
C:Date: 02-Sep-2000 #sequence\_revision 02-Sep-2000 #text\_change 09-Jul-2004  
C:Accession: T34022  
R:Hardy, D.M.; Garbers, D.L.  
J: Biol. Chem. 270, 26025-26028, 1995  
A:Title: A sperm membrane protein that binds in a species-specific manner to the egg ext  
A:Reference number: Z21464; MUID:96064658; PMID:7592795  
A:Accession: T34022  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-2476 <HAR>  
A:Cross-references: UNIPROT:Q28993; EMBL:U40024; NID:g1066465; PID:g1066466; PIDN:AAC484  
A:Experimental source: strain Meishan; testis  
C:Genetics:  
A:Gene: Zan  
C:Function:  
A:Description: may be involved in sperm adhesion to the zona pellucida

Query Match 49.5%; Score 49.5; DB 2; Length 2476;  
Best Local Similarity 50.0%; Pred. No. 90;  
Matches 9; Conservative 1; Mismatches 3; Indels 5; Gaps 1;

QY 3 CSPPCA-----NNPDYC 15  
DB 1465 CANPCPATCLSLNPDYC 1482

RESULT 9  
T02767  
cinnamyl-alcohol dehydrogenase (EC 1.1.1.195) - maize  
C:Species: Zea mays (maize)  
C:Date: 24-Mar-1999 #sequence\_revision 24-Mar-1999 #text\_change 09-Jul-2004  
C:Accession: T02767  
R:Halpin, C.; Holt, K.; Chojek, J.; Oliver, D.; Chabbert, B.; Monties, B.; Edwards, K.  
Plant J. 14, 545-553, 1998  
A:Title: Brown-midrib maize (bml) - a mutation affecting the cinnamyl alcohol dehydrogen  
A:Reference number: Z14731; MUID:98340551; PMID:9675900  
A:Accession: T02767  
A:Status: translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-367 <HAL>  
A:Cross-references: UNIPROT:Q24562; EMBL:AJ005702; NID:g3097280; PIDN:CAA06687.1; PID:g3  
A:Experimental source: cultivar UE95  
C:Genetics:  
A:Gene: cad  
A:Map position: 5L  
C:Function:

A:Description: catalyzes the reversible oxidation of cinnamyl alcohol to cinnamaldehyde  
A:Pathway: lignin biosynthesis  
C:Superfamily: alcohol dehydrogenase; long-chain alcohol dehydrogenase homology  
C:Keywords: metalloprotein; oxidoreductase; zinc  
F:32-340/Domain: long-chain alcohol dehydrogenase homology <LAD>  
F:183-212/Region: beta-alpha-beta NADP nucleotide-binding fold  
F:47,69,163/Binding site: zinc, catalytic (Cys, His, Cys) #status predicted  
F:100,103,106,114/Binding site: zinc, noncatalytic (Cys) #status predicted

Query Match 48.0%; Score 48; DB 2; Length 367;  
Best Local Similarity 52.9%; Pred. No. 32;  
Matches 9; Conservative 0; Mismatches 6; Indels 2; Gaps 1;

QY 1 GCC--SPPCAANNPDYC 15  
DB 98 GCRCSPCKANVEQYC 114

RESULT 10  
T02990  
cinnamyl-alcohol dehydrogenase (EC 1.1.1.195) - maize  
C:Species: Zea mays (maize)  
C:Date: 24-Mar-1999 #sequence\_revision 24-Mar-1999 #text\_change 09-Jul-2004  
C:Accession: T02990  
R:Civardi, L.; Tatout, P.; Maigne, A.; Puigdomenech, P.; Rigau, J.  
submitted to the EMBL Data Library, June 1997  
A:Description: Molecular cloning and characterization of cDNAs encoding cinnamyl alcohol  
A:Reference number: Z14813  
A:Accession: T02990  
A:Status: translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-367 <CIV>  
A:Cross-references: UNIPROT:Q24562; EMBL:Y13733; PIDN:CAA74070.1  
A:Experimental source: cultivar W64A  
C:Genetics:  
A:Gene: cad  
C:Function:  
A:Description: catalyzes the reversible oxidation of cinnamyl alcohol to cinnamaldehyde  
A:Pathway: lignin biosynthesis  
C:Superfamily: alcohol dehydrogenase; long-chain alcohol dehydrogenase homology  
C:Keywords: metalloprotein; oxidoreductase; zinc  
F:32-340/Domain: long-chain alcohol dehydrogenase homology <LAD>  
F:183-212/Region: beta-alpha-beta NADP nucleotide-binding fold  
F:47,69,163/Binding site: zinc, catalytic (Cys, His, Cys) #status predicted  
F:100,103,106,114/Binding site: zinc, noncatalytic (Cys) #status predicted

Query Match 48.0%; Score 48; DB 2; Length 367;  
Best Local Similarity 52.9%; Pred. No. 32;  
Matches 9; Conservative 0; Mismatches 6; Indels 2; Gaps 1;

QY 1 GCC--SPPCAANNPDYC 15  
DB 98 GCRCSPCKANVEQYC 114

RESULT 11  
T28815  
hypothetical protein F07C3.3 - Caenorhabditis elegans  
C:Species: Caenorhabditis elegans  
C:Date: 29-Oct-1999 #sequence\_revision 29-Oct-1999 #text\_change 09-Jul-2004  
C:Accession: T28815  
R:Favallo, A.; Gattung, S.  
submitted to the EMBL Data Library, March 1996  
A:Description: The sequence of C. elegans cosmid F07C3.  
A:Reference number: Z20528  
A:Accession: T28815  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: DNA  
A:Residues: 1-791 <FAV>  
A:Cross-references: UNIPROT:O19148; EMBL:U50308; PIDN:AAC48004.1; GSPDB:GN00023; CESP:F07  
A:Experimental source: strain Bristol N2; clone F07C3  
C:Genetics:  
A:Gene: CESP:F07C3.3

A:Map position: 5  
A:Introns: 16/2; 74/3; 114/2; 242/1; 279/3; 313/2; 405/1; 434/1; 494/2; 584/2; 661/3; 72

Query Match 48.0%; Score 48; DB 2; Length 791;  
Best Local Similarity 61.5%; Pred. No. 58;  
Matches 8; Conservative 0; Mismatches 5; Indels 0; Gaps 0;

QY 3 CSPPCAANNPDYC 15  
DB 7 CLPACANNTPQC 19

RESULT 12  
T16342  
hypothetical protein F42C5.7 - *Caenorhabditis elegans*  
C:Species: *Caenorhabditis elegans*  
C>Date: 20-Sep-1999 #sequence\_revision 20-Sep-1999 #text\_change 09-Jul-2004  
C:Accession: T16342  
R:Du, Z.  
submitted to the EMBL Data Library, November 1995  
A:Description: The sequence of *C. elegans* cosmid F42C5.  
A:Reference number: Z18497  
A:Accession: T16342  
A:Status: preliminary; translated from GB/EMBL/DBDJ  
A:Molecule type: DNA  
A:Residues: 1-250 <DUZ>  
A:Cross-references: UNIPROT:Q20327; EMBL:U60799; NID:G1065935; PID:G1065941; PIDN:AAAB14  
C:Genetics:  
A:Gene: CESP:F42C5.7  
A:Introns: 15/2; 40/3; 167/3; 191/3

Query Match 47.5%; Score 47.5; DB 2; Length 250;  
Best Local Similarity 50.0%; Pred. No. 27;  
Matches 9; Conservative 0; Mismatches 6; Indels 3; Gaps 1;

QY 1 GCCS---PPCAANNPDYC 15  
DB 61 GCCSMGPPPCPPPPPMC 78

RESULT 13  
F81118  
hypothetical protein NMB1135, NMB1173 [imported] - *Neisseria meningitidis* (strain MC58 B  
C:Species: *Neisseria meningitidis*  
C>Date: 31-Mar-2000 #sequence\_revision 31-Mar-2000 #text\_change 09-Jul-2004  
C:Accession: F81118; C81114  
R:Tettelin, H.; Saunders, N.J.; Heidelberg, J.; Jeffries, A.C.; Nelson, K.E.; Eisen, J.A.  
Hickey, B.K.; Haft, D.H.; Salzberg, S.L.; White, O.; Fleischmann, R.D.; Dougherty, B.A.;  
xi, H.; Qin, H.; Vamathevan, J.; Gill, J.; Scarlato, V.; Maignani, V.; Pizza, M.  
Science 287, 1809-1815, 2000  
A:Authors: Grandi, G.; Sun, L.; Smith, H.O.; Fraser, C.M.; Moxon, E.R.; Rappuoli, R.; Ve  
A:Title: Complete genome sequence of *Neisseria meningitidis* serogroup B strain MC58.  
A:Reference number: A81000; MUID:20175755; PMID:10710307  
A:Accession: F81118  
A:Molecule type: DNA  
A:Residues: 1-47 <TE2>  
A:Cross-references: UNIPROT:Q9JS32; GB:AE002462; GB:AE002098; NID:G7226363; PIDN:AAF4152  
A:Experimental source: serogroup B, strain MC58  
A:Accession: C81114  
A:Molecule type: DNA  
A:Residues: 1-47 <TE2>  
A:Cross-references: GB:AE002465; GB:AE002098; NID:G7226401; PIDN:AAF41558.1; PID:G722641  
A:Experimental source: serogroup B, strain MC58  
C:Genetics:  
A:Gene: NMB1135; NMB1173

Query Match 46.0%; Score 46; DB 2; Length 47;  
Best Local Similarity 57.1%; Pred. No. 12;  
Matches 8; Conservative 1; Mismatches 1; Indels 4; Gaps 1;

QY 2 CCSPPCAANNPDYC 15  
DB 38 CGSPPC---PDFC 47

RESULT 14  
T33087  
hypothetical protein R12E2.6 - *Caenorhabditis elegans*  
C:Species: *Caenorhabditis elegans*  
C>Date: 29-Oct-1999 #sequence\_revision 29-Oct-1999 #text\_change 09-Jul-2004  
C:Accession: T33087  
R:Goela, D.; Scheet, P.  
submitted to the EMBL Data Library, May 1998  
A:Description: The sequence of *C. elegans* cosmid R12E2.  
A:Reference number: Z21281  
A:Accession: T33087  
A:Status: preliminary; translated from GB/EMBL/DBDJ  
A:Molecule type: DNA  
A:Residues: 1-74 <COE>  
A:Cross-references: UNIPROT:O61783; EMBL:AF067219; PIDN:AAAC17027.1; GSPDB:GN00019; CESP:F  
A:Experimental source: strain Bristol N2; clone R12E2  
C:Genetics:  
A:Gene: CESP:R12E2.6  
A:Map position: 1  
A:Introns: 43/2

Query Match 46.0%; Score 46; DB 2; Length 74;  
Best Local Similarity 63.6%; Pred. No. 17;  
Matches 7; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

QY 2 CCSPPCAANNP 12  
DB 32 CCGPPPPACGNP 42

RESULT 15  
T31880  
hypothetical protein F41E6.11 - *Caenorhabditis elegans*  
C:Species: *Caenorhabditis elegans*  
C>Date: 29-Oct-1999 #sequence\_revision 29-Oct-1999 #text\_change 09-Jul-2004  
C:Accession: T31880  
R:Sammons, L.; Murray, J.  
submitted to the EMBL Data Library, July 1997  
A:Description: The sequence of *C. elegans* cosmid F41E6.  
A:Reference number: Z21095  
A:Accession: T31880  
A:Status: preliminary; translated from GB/EMBL/DBDJ  
A:Molecule type: DNA  
A:Residues: 1-316 <SAM>  
A:Cross-references: UNIPROT:O16463; EMBL:AF016448; PIDN:AAAB65959.1; GSPDB:GN00023; CESP:F  
A:Experimental source: strain Bristol N2; clone F41E6  
C:Genetics:  
A:Gene: CESP:F41E6.11  
A:Map position: 5  
A:Introns: 9/2; 21/3  
C:Superfamily: hydroxyproline-rich glycoprotein

Query Match 46.0%; Score 46; DB 2; Length 316;  
Best Local Similarity 63.6%; Pred. No. 52;  
Matches 7; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

QY 2 CCSPPCAANNP 12  
DB 217 CAQPPCPAYNP 227

Search completed: March 22, 2005, 22:54:23  
Job time : 9.41584 secs



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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:45:36 ; Search time 42.7195 Seconds  
(without alignments)  
191.792 Million cell updates/sec

Title: US-09-787-082A-22  
Perfect score: 102  
Sequence: 1 GCCSLPPCALSNPDYC 16

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : UniProt\_03.\*

1: uniprot\_sprot.\*

2: uniprot\_trembl.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB	ID	Description
1	102	100.0	61	1	CXAB_CONPE	P50985 conus penna
2	96	94.1	61	2	Q9BP56	Q9BP56 conus penna
3	94	92.2	16	1	CXAA_CONPE	P50984 conus penna
4	75	73.5	16	1	CXAL_CONAL	P56639 conus aulic
5	75	73.5	66	2	Q6PBE2	Q6PBE2 conus querc
6	74	72.5	16	1	CXAL_CONEP	P56638 conus episc
7	70	68.6	65	2	Q6PTD1	Q6PTD1 conus marmo
8	68	66.7	16	1	CXA3_CONAL	P56641 conus aulic
9	67	65.7	15	1	CXA2_CONAL	P56640 conus aulic
10	66	64.7	67	2	Q6PBE3	Q6PBE3 conus querc
11	65	63.7	67	2	Q6PTD7	Q6PTD7 conus querc
12	65	63.7	68	2	Q6PBE0	Q6PBE0 conus miles
13	65	63.7	68	2	Q6PTD4	Q6PTD4 conus leopa
14	60	58.8	118	2	Q8C210	Q8C210 mus musculus
15	58	56.9	149	2	Q27591	Q27591 methanobact
16	56	54.9	169	2	Q82808	Q82808 streptomyc
17	56	54.9	175	2	Q9S255	Q9S255 streptomyc
18	55	53.9	193	1	CXAD_CONGE	P60274 conus geogr
19	54	52.9	291	2	Q9WX38	Q9WX38 anabaena va
20	54	52.9	386	2	Q8YTE3	Q8YTE3 anabaena sp
21	53	52.0	18	1	CXAL_CONER	P50982 conus erwin
22	53	52.0	40	1	CXAC_CONGE	Q86rb2 conus geogr
23	53	52.0	144	2	Q8PT98	Q8PT98 xanthomonas
24	53	52.0	260	2	Q45993	Q45993 caenorhabdi
25	52	51.0	1066	2	Q8MR5	Q8MR5 drosophila
26	52	51.0	2447	2	Q9NEF9	Q9NEF9 drosophila
27	52	51.0	3215	2	Q8IRV7	Q8IRV7 drosophila
28	52	51.0	4117	2	Q8IRV9	Q8IRV9 drosophila
29	52	51.0	4179	2	Q9W4Y4	Q9W4Y4 drosophila
30	52	51.0	4223	2	Q8MEN3	Q8MEN3 drosophila
31	52	51.0	4228	2	Q8IRV8	Q8IRV8 drosophila

32	51.5	50.5	253	1	GPH_KLEAE	Q9eyv5 klebsiella
33	51	50.0	63	2	Q6PPB1	Q6ppb1 conus leopa
34	51	50.0	66	1	CXA2_CONTE	Q9xzk7 conus texti
35	51	50.0	67	2	Q6PTD3	Q6ptd3 conus leopa
36	51	50.0	125	2	Q9NV61	Q9nv61 homo sapien
37	51	50.0	145	2	Q87JB8	Q87jb8 vibrio para
38	51	50.0	154	2	Q6AQG0	Q6aqq0 desulfotale
39	51	50.0	240	2	Q8TCU1	Q8tcul homo sapien
40	51	50.0	3374	2	Q8JJZ3	Q8jjz3 montana myo
41	50	49.0	41	1	CXA2_CONMA	P56636 conus magus
42	50	49.0	69	1	CXAL_CONTE	Q9xzk6 conus texti
43	50	49.0	97	2	Q95KL8	Q95kl8 macaca mula
44	50	49.0	105	2	Q862T9	Q862t9 bos taurus
45	50	49.0	132	2	Q862B8	Q862b8 bos taurus

#### ALIGNMENTS

RESULT 1  
CXAB\_CONPE  
ID CXAB\_CONPE STANDARD; PRT; 61 AA.  
AC P50985: Q9BP57;  
DT 01-OCT-1996 (Rel. 34, Created)  
DT 29-MAR-2004 (Rel. 43, Last sequence update)  
DT 25-OCT-2004 (Rel. 45, Last annotation update)  
DE Alpha-conotoxin PnIB precursor.  
OS Conus pennaceus (Feathered cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=37335;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE=21105969; PubMed=11158371;  
RA Conticello S.G.; Gilad Y.; Avidan N.; Ben-Asher E.; Levy Z.;  
RA Fainzilber M.;  
RL "Mechanisms for evolving hypervariability: the case of conopeptides."; Mol. Biol. Evol. 18:120-131(2001).  
RN [2]  
RP SEQUENCE OF 45-60.  
RC TISSUE=Venom;  
RX MEDLINE=94347719; PubMed=8068627;  
RA Fainzilber M.; Haason A.; Oren R.; Burlingame A.L.; Gordon D.;  
RA Spira M.E.; Zlotkin E.;  
RT "New mollusc-specific alpha-conotoxins block Aplysia neuronal acetylcholine receptors."; Biochemistry 33:9523-9529(1994).  
RN [3]  
RP SULFATION OF TYR-59.  
RX MEDLINE=99242956; PubMed=10226369;  
RA Wolfender J.L.; Chu F.; Ball H.; Wolfender F.; Fainzilber M.;  
RA Baldwin M.A.; Burlingame A.L.;  
RT "Identification of tyrosine sulfation in Conus pennaceus conotoxins alpha-PnIA and alpha-PnIB: further investigation of labile sulfo- and phosphopeptides by electrospray, matrix-assisted laser desorption/ionization (MALDI) and atmospheric pressure MALDI mass spectrometry."; J. Mass Spectrom. 34:447-454(1999).  
RN [4]  
RP X-RAY CRYSTALLOGRAPHY (1.1 ANGSTROMS) OF 45-60.  
RX MEDLINE=97444322; PubMed=9298951; DOI=10.1021/bi9713052;  
RA Hu S.H.; Gehrmann J.; Alewood P.F.; Craik D.J.; Martin J.L.;  
RT "Crystal structure at 1.1-A resolution of alpha-conotoxin PnIB: comparison with alpha-conotoxins PnIA and GI."; Biochemistry 36:11323-11330(1997).  
RL Biochemistry 36:11323-11330(1997).  
CC -1- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they bind to the nicotinic acetylcholine receptors (nAChR) and thus inhibit them. In contrast to other alpha-conotoxins, which are selective for vertebrate skeletal muscle nAChR, the Conus pennaceus alpha-conotoxins block nAChR in mollusks.  
CC -1- SUBCELLULAR LOCATION: Secreted.  
CC -1- TISSUE SPECIFICITY: Expressed by the venom duct.



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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:44:17 ; Search time 61.4521 Seconds  
(without alignments)  
119.580 Million cell updates/sec

Title: US-09-787-082A-23

Perfect score: 128

Sequence: 1 GCCCNFACGPNVCGTSCS 19

Scoring table:

BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : A\_Geneseq\_16Dec04:\*

1: Geneseqp1980s:\*

2: Geneseqp1990s:\*

3: Geneseqp2000s:\*

4: Geneseqp2001s:\*

5: Geneseqp2002s:\*

6: Geneseqp2003as:\*

7: Geneseqp2003bs:\*

8: Geneseqp2004s:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	128	100.0	19	2	AAW12732 Alpha-con
2	128	100.0	22	2	AAW12732 Alpha-con
3	128	100.0	22	2	AAW12732 Alpha-con
4	128	100.0	22	5	ABG99812 Conus sp
5	128	100.0	67	3	AAW15135 Alpha-con
6	128	100.0	67	5	AAW19731 Conus str
7	128	100.0	67	5	ABG99625 Conus sp
8	128	100.0	72	2	AAW12761 A-lineage
9	128	100.0	72	2	AAW12761 A-lineage
10	122	95.3	25	3	AAW15137 Alpha-con
11	122	95.3	25	5	AAW19733 Conus str
12	102	79.7	22	5	ABG99810 Conus sp
13	102	79.7	22	5	ABG99626 Conus sp
14	102	79.7	67	5	ABG99621 Conus sp
15	96	75.0	25	3	AAW15108 Class I a
16	96	75.0	25	5	AAW19704 Conus str
17	83	64.8	61	3	AAW15145 Alpha-con
18	83	64.8	61	5	AAW19741 Conus cir
19	79	61.7	19	3	AAW15156 Alpha-con
20	79	61.7	19	5	AAW19752 Conus obs
21	79	61.7	59	3	AAW15130 Alpha-con
22	79	61.7	59	5	AAW19726 Conus str
23	79	61.7	64	2	AAW15297 Alpha-con
24	79	61.7	64	2	AAW12760 A-lineage
25	77	60.2	59	3	AAW15134 Alpha-con

26	77	60.2	59	5	AAW19730 Conus ste
27	76	59.4	22	5	ABG99622 Conus sp
28	75	58.6	59	3	AAW15152 Alpha-con
29	75	58.6	59	5	AAW19748 Conus mag
30	74	57.8	14	5	AAW19765 MI alpha-
31	73	57.0	13	2	AAW19768 Alpha-con
32	73	57.0	13	2	AAW12730 Alpha-con
33	73	57.0	13	4	AAW192216 Toxin pep
34	73	57.0	13	4	AAW192216 Toxin pep
35	73	57.0	14	2	AAW15294 Predicted
36	73	57.0	14	2	AAW24900 Predicted
37	72	56.2	15	7	ADJ17172 Exemplary
38	72	56.2	892	8	ADP30487 Human sec
39	72	56.2	1179	8	ADP30486 Human sec
40	71	55.5	15	1	AAW40328 Sequence
41	71	55.5	15	2	AAW15265 Alpha-con
42	71	55.5	15	2	AAW12727 Alpha-con
43	71	55.5	59	3	AAW15129 Alpha-con
44	71	55.5	59	5	AAW19725 Conus geo
45	71	55.5	64	2	AAW38801 Conotoxin

#### ALIGNMENTS

##### RESULT 1

AAW12732

ID AAW12732 standard; peptide; 19 AA.

XX AAW12732;

XX 25-MAR-2003 (revised)

DT 16-APR-1997 (first entry)

XX Alpha-conotoxin peptide SII.

DE Alpha-conotoxin peptide SII.

XX Polymerase chain reaction; PCR; primer; amplify; conotoxin; Conus;

KW inhibitor; synaptic transmission; neuromuscular junction; sodium channel;

KW nicotinic acetylcholine receptor; potassium channel; muscle relaxant;

KW myasthenia gravis; small cell lung cancer; therapy.

XX Conus striatus.

OS Conus striatus.

PN US5589340-A.

XX 31-DEC-1996.

PD 07-JUN-1995; 95US-00477383.

XX 29-JUN-1993; 93US-00084848.

PR 19-OCT-1993; 93US-00137800.

XX (UTAH ) UNIV UTAH RES FOUND.

XX Santos AD, Hillyard DR, McIntosh JM, Olivera BM, Cruz LJ;

PI WPI; 1997-076840/07.

XX Identifying nucleic acid encoding A-lineage conotoxin peptide(s) by

DR amplification - uses primers corresponding to conserved regions in the

XX signal sequence and 3'-untranslated regions, useful e.g. in treatment of

XX small cell lung cancer.

XX Disclosure; Col 3; 36pp; English.

XX AAW12726-W12769 represent conotoxin peptides. This sequence represents

XX the SII alpha-conotoxin peptide isolated from Conus striatus. These

XX sequences are identified using the method of the invention. The method of

XX the invention is for identifying DNA encoding A-lineage conotoxin

XX peptides by subjecting Conus nucleic acid to amplification with primer

XX sequences (see AAW59714 and AAW59715). The primers are specific for the

XX signal sequence and 3'-untranslated (3'UTR) regions of the conotoxin

XX gene, which are highly homologous between conotoxins, and are therefore

CC suitable sites for detection. A-lineage conotoxins include alpha-conotoxins, and kappa-conotoxins. Alpha-conotoxins are powerful inhibitors of synaptic transmission at the neuromuscular junction, and are usually nicotinic acetylcholine receptor blockers. Kappa-conotoxins act on the voltage sensitive sodium and potassium channels. The conotoxins identified can be used as muscle relaxants, in the diagnosis of myasthenia gravis, and for the treatment or diagnosis of small cell lung cancer. For the treatment of small cell lung cancer, the conotoxin peptides act by binding to the nicotinic receptors, and thereby blocking the nicotine/cytosine stimulated release of the mitogen 5-hydroxytryptamine. (Updated on 25-MAR-2003 to correct PF field.)

XX  
SQ Sequence 19 AA;

Query Match 100.0%; Score 128; DB 2; Length 19;  
Best Local Similarity 100.0%; Pred. No. 7.2e-08;  
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCCNACGPNYCGTSCS 19  
DB 1 GCCCNACGPNYCGTSCS 19

RESULT 2  
AAR75270  
ID AAR75270 standard; peptide; 22 AA.

XX AC AAR75270;

XX DT 21-DEC-1995 (first entry)

XX DE Alpha-conotoxin SII peptide.

XX KW Alpha conotoxin; neuromuscular; synapse; signal transmission.

XX OS Conus striatus.

XX PH Location/Qualifiers

FT Peptide 1. .22

FT /notes= "Contains 3 disulphide bonds; the precise locations are not given in the specification. The tripeptide Arg-Thr-Leu at position 19-22 may be absent"

XX PN W09511256-A1.

XX PD 27-APR-1995.

XX PF 19-OCT-1994; 94WO-US011927.

XX PR 19-OCT-1993; 93US-00137800.

XX PA (UTAH ) UNIV UTAH RES FOUND.

XX PI Olivera BM, Cruz LJ, Hillyard DR, McIntosh JM, Santos AD;

XX DR WPI; 1995-170189/22.

XX New A-lineage conotoxin peptide(s) - which inhibit synaptic transmission at the neuromuscular junction or are active against potassium or sodium channels.

XX PS Claim 1; Page 40; 66pp; English.

XX CC The kappa-conotoxin, alpha conotoxin and alpha-like conotoxin peptides all belong to a group of peptides known as the A-lineage conotoxin peptides. The A lineage conotoxin peptides have a wide variety of pharmacological uses. The A-lineage conotoxin peptides claimed (AAR75264-R75293) are useful for the inhibition of synaptic transmission at neuromuscular junctions by blocking nicotinic acetyl choline receptors and they also have activity against voltage-gated Na and K channels

XX SQ Sequence 22 AA;

Query Match 100.0%; Score 128; DB 2; Length 22;  
Best Local Similarity 100.0%; Pred. No. 8.2e-08;  
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCCNACGPNYCGTSCS 19  
DB 1 GCCCNACGPNYCGTSCS 19

RESULT 3  
AAW24878  
ID AAW24878 standard; peptide; 22 AA.

XX AC AAW24878;

XX DT 25-MAR-2003 (revised)

XX DT 15-OCT-1997 (first entry)

XX DE Predatory cone snail venom alpha-conotoxin SII.

XX KW Conotoxin; venom; predatory; cone snail; Conus; A-lineage; inhibitor; synaptic transmission; neuromuscular junction; block; alpha-conotoxin; nicotinic acetylcholine receptor; kappa-conotoxin; voltage-sensitive potassium CHANNEL; sodium channel.

XX OS Conus striatus.

XX FH Location/Qualifiers

FT Misc-difference 20. .22

FT /note= "these residues may be absent"

XX PN US5633347-A.

XX PD 27-MAY-1997.

XX PF 07-JUN-1995; 95US-00480750.

XX PR 29-JUN-1993; 93US-00084848.

XX PR 19-OCT-1993; 93US-00137800.

XX PA (UTAH ) UNIV UTAH RES FOUND.

XX PI Hillyard DR, Cruz LJ, McIntosh JM, Santos AO, Olivera BM;

XX DR WPI; 1997-309336/28.

XX New kappa-conotoxin peptide(s) - present in venom of fish-hunting cone snail.

XX PS Disclosure; Col 4; 37pp; English.

XX CC The peptides AAW24878-W24900 represent novel toxin peptides isolated from the venom of various predatory cone snails of the genus Conus. The peptides are A-lineage conotoxin peptides which fall into 3 groups dependent on their amino acid sequences: (i) alpha-3/5 have a core sequence CXXXXCXXXXX where X is any amino acid; (ii) alpha-4/7 have a core sequence CXXXXCXXXXXX; and (iii) kappa-7/21/3 have the core sequence CXXXXCXXXXCXXXXC. The peptide presented here was isolated from Conus striatum and falls into the alpha-3/5 category. Alpha-conotoxin peptides are potent inhibitors of synaptic transmission at the neuromuscular junction by blocking nicotinic acetylcholine receptors, whereas kappa-conotoxins have activities against voltage-sensitive potassium or sodium channels. (Updated on 25-MAR-2003 to correct PF field.)

XX SQ Sequence 22 AA;

Query Match 100.0%; Score 128; DB 2; Length 22;  
Best Local Similarity 100.0%; Pred. No. 8.2e-08;  
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCCNACGPNYCGTSCS 19  
|||||

Db 1 GCCCNPACGPNYGGTSCS 19

RESULT 4  
ABG99812

ID ABG99812 standard; peptide; 22 AA.

AC ABG99812;

XX XX

DT 17-JAN-2003 (first entry)

XX XX

DE Conus sp conotoxin-associated peptide SEQ ID 597.

XX XX

KW Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;

KW ligand-gated ion channel modulator; pain-relief.

XX XX

OS Conus rattus.

XX XX

PN W0200264740-A2.

XX XX

PD 22-AUG-2002.

XX XX

PP 11-FEB-2002; 2002WO-US003887.

XX XX

PR 09-FEB-2001; 2001US-0267408P.

XX XX

PA (COGN-) COGNETIX INC.

PA (UTAH) UNIV UTAH RES FOUND.

XX XX

PI Olivera BM, McIntosh JM, Watkins M, Garrett JE, Cruz LJ;

PI Grille M, Walker CS, Shetty R, Jones RM, Schoenfeld RM;

XX XX

DR WPI; 2002-706921/76.

XX XX

PT New cone snail conotoxin peptides, useful as a pain reliever for

PT alleviating pain in an individual suffering from pain or who is about to

PT be subjected to a pain-causing event, or for treating voltage-gated ion

PT channel disorders.

XX XX

PS Claim 1; Page 297; 305pp; English.

XX XX

CC This invention describes novel conotoxin peptides from the cone snail,

CC genus Conus which have analgesic activity and can act as a voltage-gated

CC ion channel modulator or a ligand-gated ion channel modulator. The

CC conotoxin peptide is useful as a pain-relieving agent for alleviating

CC pain in an individual who is either exhibiting pain or is about to be

CC subjected to a pain-causing event. The conotoxin peptide is also useful

CC for treating or preventing disorders associated with voltage-gated ion

CC channel disorders, ligand-gated ion channel disorders or receptor

CC disorders. The radiolabeled conotoxin peptide is also useful for

CC characterizing a new site on these receptors or channels, and for

CC screening and identifying novel small molecules that interact with the

CC above-mentioned channels or receptors, which are monoamine transporters.

CC ABG99360-ABG99853 represent the conotoxin protein and peptides described

CC in the disclosure of the invention

XX XX

SQ Sequence 22 AA;

Query Match 100.0%; Score 128; DB 5; Length 22;

Best Local Similarity 100.0%; Pred. No. 8.2e-08;

Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCCNPACGPNYGGTSCS 19

|||||

Db 1 GCCCNPACGPNYGGTSCS 19

|||||

RESULT 5  
AAB15135

ID AAB15135 standard; protein; 67 AA.

XX XX

AC AAB15135;

XX XX

DT 12-MAR-2001 (first entry)

XX XX

DE Alpha-conotoxin propeptide SIIA.

XX XX

KW Alpha-conotoxin; neuromuscular; nicotinic acetylcholine receptor;

KW neuromuscular blocking agent; muscle relaxant; anaesthesia;

KW benign essential blepharospasm; focal dystonia; anti-wrinkle agent.

XX XX

OS Conus sp.

XX XX

PN W0200043409-A2.

XX XX

PD 27-JUL-2000.

XX XX

PP 21-JAN-2000; 2000WO-US001372.

XX XX

PR 22-JAN-1999; 99US-0116881P.

XX XX

PR 22-JAN-1999; 99US-0116882P.

XX XX

PA (UTAH) UNIV UTAH RES FOUND.

PA (COGN-) COGNETIX INC.

XX XX

PI Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;

PI Jones RM;

XX XX

DR WPI; 2000-499215/44.

XX XX

DR N-PSDB; AAA74558.

XX XX

PT New alpha-conotoxin peptides, 10-25 residues in length, useful as

PT neuromuscular blocking agents (e.g. as muscle relaxants) during surgical

PT procedures requiring anesthesia and musculoskeletal relaxation.

XX XX

PS Example 4; Page 27; 95pp; English.

XX XX

CC Alpha-conotoxins are small peptides, which are highly specific for

CC neuromuscular junction nicotinic acetylcholine receptors. The present

CC sequence is an alpha-conotoxin propeptide. The mature peptide of the

CC present sequence is useful as a neuromuscular blocking agent (e.g. as a

CC muscle relaxant) during surgical procedures requiring anaesthesia and

CC musculoskeletal relaxation, for treating benign essential blepharospasm

CC and other forms of focal dystonia. The mature peptide of the present

CC peptide is also useful as an anti-wrinkle agent

XX XX

SQ Sequence 67 AA;

Query Match 100.0%; Score 128; DB 3; Length 67;

Best Local Similarity 100.0%; Pred. No. 2e-07;

Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCCNPACGPNYGGTSCS 19

|||||

Db 46 GCCCNPACGPNYGGTSCS 64

|||||

RESULT 6  
AAB19731

ID AAB19731 standard; protein; 67 AA.

XX XX

AC AAB19731;

XX XX

DT 31-MAY-2002 (first entry)

XX XX

DE Conus striatus SIIA alpha-conotoxin protein.

XX XX

KW Cone snail; neuromuscular blocking agent; muscle relaxation; caesarean;

KW muscle contraction; therapy; anaesthesia; musculoskeletal relaxation;

KW benign essential blepharospasm; focal dystonia; anti-wrinkle;

KW SIIA alpha-conotoxin.

XX XX

OS Conus striatus.

XX XX

PN W0200207750-A1.

XX XX

PD 31-JAN-2002.  
XX  
PF 20-JUL-2001; 2001WO-US022892.  
XX  
PR 20-JUL-2000; 2000US-0219407P.  
PR 28-JUL-2000; 2000US-0221557P.  
XX  
PA (COGN-) COGNETIX INC.  
PA (UTAH ) UNIV UTAH RES FOUND.  
XX  
PI Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;  
PI Schoenfeld R, Jones RM, Nielsen J;  
XX  
DR WPI; 2002-217022/27.  
XX  
DR N-PSDB; AAD31477.  
XX  
XX New alpha-conotoxin peptide analogs, useful as neuromuscular blocking  
PT agents, particularly for providing muscle relaxation during cesarean  
PT section or surgical procedures requiring anesthesia and musculoskeletal  
PT relaxation.  
XX  
PS Example 4; Page 27; 96pp; English.  
XX  
CC The present invention relates to novel alpha-conotoxin peptides which are  
CC naturally available in minute amounts in the venom of cone snails. The  
CC invention also relates to alpha-conotoxin peptide analogues. The alpha-  
CC conotoxin peptides are useful as neuromuscular blocking agents in  
CC conjunction with surgery or for intubation of the trachea by conventional  
CC parenteral administration. They are useful for providing muscle  
CC relaxation during cesarean section procedures and hence minimise muscle  
CC contraction. Peptides of the invention are useful for treating a patient  
CC during surgical procedures requiring anaesthesia and musculo- skeletal  
CC relaxation. They are useful as muscle relaxants for treating benign  
CC essential blepharospasm and other forms of focal dystonia and for anti-  
CC wrinkle use. The present sequence is Conus striatus SIIA alpha-conotoxin  
CC protein  
XX  
SQ Sequence 67 AA;  
  
Query Match 100.0%; Score 128; DB 5; Length 67;  
Best Local Similarity 100.0%; Pred. No. 2e-07;  
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
  
QY 1 GCCCNPAAGNYGCGTSCS 19  
DB |||||  
46 GCCCNPAAGNYGCGTSCS 64  
  
RESULT 7  
ABG99625  
ID ABG99625 standard; protein; 67 AA.  
XX  
AC ABG99625;  
XX  
DT 17-JAN-2003 (first entry)  
XX  
DE Conus sp conotoxin-associated protein SEQ ID 389.  
XX  
XX Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;  
XX ligand-gated ion channel modulator; pain-relief.  
XX  
OS Conus rattus.  
XX  
PN WO200264740-A2.  
XX  
XX 22-AUG-2002.  
XX  
XX 11-FEB-2002; 2002WO-US003887.  
XX  
XX 09-FEB-2001; 2001US-0267408P.  
XX  
XX (COGN-) COGNETIX INC.  
XX (UTAH ) UNIV UTAH RES FOUND.  
XX

XX  
PI Olivera BM, McIntosh JM, Watkins M, Garrett JB, Cruz LJ;  
PI Grille M, Walker CS, Shetty R, Jones RM, Schoenfeld RM;  
XX  
DR WPI; 2002-706921/76.  
DR N-PSDB; ABX04949.  
XX  
XX New cone snail conotoxin peptides, useful as a pain reliever for  
PT alleviating pain in an individual suffering from pain or who is about to  
PT be subjected to a pain-causing event, or for treating voltage-gated ion  
PT channel disorders.  
XX  
PS Claim 1; Page 251; 305pp; English.  
XX  
CC This invention describes novel conotoxin peptides from the cone snail,  
CC genus Conus which have analgesic activity and can act as a voltage-gated  
CC ion channel modulator or a ligand-gated ion channel modulator. The  
CC conotoxin peptide is useful as a pain-relieving agent for alleviating  
CC pain in an individual who is either exhibiting pain or is about to be  
CC subjected to a pain-causing event. The conotoxin peptide is also useful  
CC for treating or preventing disorders associated with voltage-gated ion  
CC channel disorders, ligand-gated ion channel disorders or receptor  
CC disorders. The radiolabeled conotoxin peptide is also useful for  
CC characterising a new site on these receptors or channels, and for  
CC screening and identifying novel small molecules that interact with the  
CC above-mentioned channels or receptors, which are monoamine transporters.  
CC ABG99360-ABG99853 represent the conotoxin protein and peptides described  
CC in the disclosure of the invention  
XX  
SQ Sequence 67 AA;  
  
Query Match 100.0%; Score 128; DB 5; Length 67;  
Best Local Similarity 100.0%; Pred. No. 2e-07;  
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
  
QY 1 GCCCNPAAGNYGCGTSCS 19  
DB |||||  
46 GCCCNPAAGNYGCGTSCS 64  
  
RESULT 8  
AAR75298  
ID AAR75298 standard; peptide; 72 AA.  
XX  
AC AAR75298;  
XX  
DT 22-DEC-1995 (first entry)  
XX  
DE Alpha-conotoxin SIIA prepropeptide sequence.  
XX  
XX Alpha conotoxin; neuromuscular; synapse; signal transmission.  
XX  
OS Conus striatus.  
XX  
PN WO9511256-A1.  
XX  
XX 27-APR-1995.  
XX  
XX 19-OCT-1994; 94WO-US011927.  
XX  
XX 19-OCT-1993; 93US-00137800.  
XX  
XX (UTAH ) UNIV UTAH RES FOUND.  
XX  
XX Olivera BM, Cruz LJ, Hillyard DR, McIntosh JM, Santos AD;  
XX WPI; 1995-170189/22.  
XX  
XX New A-lineage conotoxin peptide(s) - which inhibit synaptic transmission  
PT at the neuromuscular junction or are active against potassium or sodium  
PT channels.  
XX  
PS Disclosure; Page 52; 66pp; English.

XX AAR75296-R75298 are the prepropeptide sequences of 3 alpha-conotoxin  
 CC peptides. The kappa-conotoxin, alpha-conotoxin and alpha-like conotoxin  
 CC peptides all belong to a group of peptides known as the A-lineage  
 CC conotoxin peptides. The A lineage conotoxin peptides have a wide variety  
 CC of pharmacological uses. The A-lineage conotoxin peptides claimed  
 CC (AAR75264-R75293) are useful for the inhibition of synaptic transmission  
 CC at neuromuscular junctions by blocking nicotinic acetyl choline receptors  
 CC and they also have activity against voltage-gated Na and K channels  
 XX

SQ Sequence 72 AA;  
 Query Match 100.0%; Score 128; DB 2; Length 72;  
 Best Local Similarity 100.0%; Pred. No. 2.2e-07;  
 Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCCNACGPNYGGTSCS 19  
 |||||  
 DB 51 GCCCNACGPNYGGTSCS 69

RESULT 9  
 AAW12761  
 ID AAW12761 standard; peptide; 72 AA.  
 AC AAW12761;  
 XX  
 XX  
 DT 25-MAR-2003 (revised)  
 DT 16-APR-1997 (first entry)  
 XX  
 XX  
 DE A-lineage conotoxin SITA prepropeptide.  
 XX  
 XX Polymerase chain reaction; PCR; primer; amplify; conotoxin; Conus;  
 KW inhibitor; synaptic transmission; neuromuscular junction; sodium channel;  
 KW nicotinic acetylcholine receptor; potassium channel; muscle relaxant;  
 KW myasthenia gravis; small cell lung cancer; therapy.  
 XX  
 OS Conus striatus.  
 XX  
 XX US5589340-A.  
 XX  
 XX 31-DEC-1996.  
 XX  
 XX 07-JUN-1995; 95US-00477383.  
 XX  
 XX 29-JUN-1993; 93US-00084848.  
 XX  
 XX 19-OCT-1993; 93US-00137800.  
 XX  
 XX (UTAH ) UNIV UTAH RES FOUND.  
 XX  
 XX Santos AD, Hillyard DR, McIntosh JM, Olivera BM, Cruz LJ;  
 XX WPI; 1997-076840/07.  
 XX  
 XX Identifying nucleic acid encoding A-lineage conotoxin peptide(s) by  
 PT amplification - uses primers corresponding to conserved regions in the  
 PT signal sequence and 3'-untranslated regions, useful e.g. in treatment of  
 PT small cell lung cancer.  
 XX  
 XX Disclosure; Col 7; 36pp; English.  
 XX  
 CC AAW12726-W12769 represent conotoxin peptides. This sequence represents  
 CC the A-lineage conotoxin SITA prepropeptide isolated from Conus striatus.  
 CC These sequences are identified using the method of the invention. The  
 CC method of the invention is for identifying DNA encoding A-lineage  
 CC conotoxin peptides by subjecting Conus nucleic acid to amplification with  
 CC primer sequences (see AAT59714 and AAT59715). The primers are specific  
 CC for the signal sequence and 3'-untranslated (3'UTR) regions of the  
 CC conotoxin gene, which are highly homologous between conotoxins, and are  
 CC therefore suitable sites for detection. A-lineage conotoxins include  
 CC alpha-conotoxins, and kappa-conotoxins. Alpha-conotoxins are powerful  
 CC inhibitors of synaptic transmission at the neuromuscular junction, and  
 CC are usually nicotinic acetylcholine receptor blockers. Kappa-conotoxins

CC act on the voltage sensitive sodium and potassium channels. The  
 CC conotoxins identified can be used as muscle relaxants, in the diagnosis  
 CC of myasthenia gravis, and for the treatment or diagnosis of small cell  
 CC lung cancer. For the treatment of small cell lung cancer, the conotoxin  
 CC peptides act by binding to the nicotinic receptors, and thereby blocking  
 CC the nicotine/cytosine stimulated release of the mitogen 5-  
 CC hydroxytryptamine. (Updated on 25-MAR-2003 to correct PF field.)  
 XX

SQ Sequence 72 AA;  
 Query Match 100.0%; Score 128; DB 2; Length 72;  
 Best Local Similarity 100.0%; Pred. No. 2.2e-07;  
 Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCCNACGPNYGGTSCS 19  
 |||||  
 DB 51 GCCCNACGPNYGGTSCS 69

RESULT 10  
 AAB15137  
 ID AAB15137 standard; peptide; 25 AA.  
 AC AAB15137;  
 XX  
 XX  
 DT 12-MAR-2001 (first entry)  
 XX  
 XX Alpha-conotoxin propeptide S2.  
 XX  
 XX Alpha-conotoxin; neuromuscular; nicotinic acetylcholine receptor;  
 KW neuromuscular blocking agent; muscle relaxant; anaesthesia;  
 KW benign essential blepharospasm; focal dystonia; anti-wrinkle agent.  
 XX  
 OS Conus sp.  
 XX  
 XX WO200043409-A2.  
 XX  
 XX 27-JUL-2000.  
 XX  
 XX 21-JAN-2000; 2000WO-US001372.  
 XX  
 XX 22-JAN-1999; 99US-0116881P.  
 XX  
 XX 22-JAN-1999; 99US-0116882P.  
 XX  
 XX (UTAH ) UNIV UTAH RES FOUND.  
 XX  
 XX (COGN-) COGNETIX INC.  
 XX  
 XX Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;  
 XX Jones RM;  
 XX WPI; 2000-499215/44.  
 XX  
 XX N-PSDB; AAA74560.  
 XX  
 XX New alpha-conotoxin peptides, 10-25 residues in length, useful as  
 PT neuromuscular blocking agents (e.g. as muscle relaxants) during surgical  
 PT procedures requiring anesthesia and musculoskeletal relaxation.  
 XX  
 XX Example 4; Page 27; 95pp; English.  
 XX  
 CC Alpha-conotoxins are small peptides, which are highly specific for  
 CC neuromuscular junction nicotinic acetylcholine receptors. The present  
 CC sequence is an alpha-conotoxin propeptide. The mature peptide of the  
 CC present sequence is useful as a neuromuscular blocking agent (e.g. as a  
 CC muscle relaxant) during surgical procedures requiring anaesthesia and  
 CC musculoskeletal relaxation, for treating benign essential blepharospasm  
 CC and other forms of focal dystonia. The mature peptide of the present  
 CC peptide is also useful as an anti-wrinkle agent  
 XX

SQ Sequence 25 AA;  
 Query Match 95.3%; Score 122; DB 3; Length 25;  
 Best Local Similarity 100.0%; Pred. No. 4.4e-07;  
 Matches 18; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 CCNPACGPNYCGTSCS 19  
 DB 1 CCNPACGPNYCGTSCS 18

## RESULT 11

AAE19733  
 ID AAE19733 standard; protein; 25 AA.

XX AC AAE19733;  
 XX 31-MAY-2002 (first entry)

DE Conus striatus S2 alpha-conotoxin protein.

XX Cone snail; neuromuscular blocking agent; muscle relaxation; caesarean;  
 KW muscle contraction; therapy; anaesthesia; musculoskeletal relaxation;  
 KW benign essential blepharospasm; focal dystonia; anti-wrinkle;  
 KW S2 alpha-conotoxin.

XX Conus striatus.

XX WO200207750-A1.

XX 31-JAN-2002.

XX 20-JUL-2001; 2001WO-US022892.

XX 20-JUL-2000; 2000US-0219407P.

XX 28-JUL-2000; 2000US-0221557P.

XX (COGN-) COGNETIX INC.

XX (UTAH) UNIV UTAH RES FOUND.

XX Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;  
 PI Schoenfeld R, Jones RM, Nielsen J;

XX WPI; 2002-217022/27.

XX N-PSDB; AAD31479.

XX New alpha-conotoxin peptide analogs, useful as neuromuscular blocking  
 PT agents, particularly for providing muscle relaxation during caesarean  
 PT section or surgical procedures requiring anesthesia and musculoskeletal  
 PT relaxation.

XX Example 4; Page 28; 96pp; English.

XX The present invention relates to novel alpha-conotoxin peptides which are  
 CC naturally available in minute amounts in the venom of cone snails. The  
 CC invention also relates to alpha-conotoxin peptide analogues. The alpha-  
 CC conotoxin peptides are useful as neuromuscular blocking agents in  
 CC conjunction with surgery or for intubation of the trachea by conventional  
 CC parenteral administration. They are useful for providing muscle  
 CC relaxation during caesarean section procedures and hence minimise muscle  
 CC contraction. Peptides of the invention are useful for treating a patient  
 CC during surgical procedures requiring anaesthesia and musculo-skeletal  
 CC relaxation. They are useful as muscle relaxants for treating benign  
 CC essential blepharospasm and other forms of focal dystonia and for anti-  
 CC wrinkle use. The present sequence is Conus striatus S2 alpha-conotoxin  
 CC protein

XX Sequence 25 AA;

Query Match 95.3%; Score 122; DB 5; Length 25;  
 Best Local Similarity 100.0%; Pred. No. 4.4e-07;  
 Matches 18; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 CCNPACGPNYCGTSCS 19  
 DB 1 CCNPACGPNYCGTSCS 18

## RESULT 12

ABG99810

ID ABG99810 standard; peptide; 22 AA.

XX AC ABG99810;

XX 17-JAN-2003 (first entry)

XX Conus sp conotoxin-associated peptide SEQ ID 595.

XX Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;  
 KW ligand-gated ion channel modulator; pain-relief.

XX Conus striatus.

XX WO200264740-A2.

XX 22-AUG-2002.

XX 11-FEB-2002; 2002WO-US003887.

XX 09-FEB-2001; 2001US-0267408P.

XX (COGN-) COGNETIX INC.

XX (UTAH) UNIV UTAH RES FOUND.

XX Olivera BM, McIntosh JM, Watkins M, Garrett JE, Cruz LJ;  
 PI Grille M, Walker CS, Shetty R, Jones RM, Schoenfeld RM;

XX WPI; 2002-706921/76.

XX New cone snail conotoxin peptides, useful as a pain reliever for  
 PT alleviating pain in an individual suffering from pain or who is about to  
 PT be subjected to a pain-causing event, or for treating voltage-gated ion  
 PT channel disorders.

XX Claim 1; Page 297; 305pp; English.

XX This invention describes novel conotoxin peptides from the cone snail,  
 CC genus Conus which have analgesic activity and can act as a voltage-gated  
 CC ion channel modulator or a ligand-gated ion channel modulator. The  
 CC conotoxin peptide is useful as a pain-relieving agent for alleviating  
 CC pain in an individual who is either exhibiting pain or is about to be  
 CC subjected to a pain-causing event. The conotoxin peptide is also useful  
 CC for treating or preventing disorders associated with voltage-gated ion  
 CC channel disorders, ligand-gated ion channel disorders or receptor  
 CC disorders. The radiolabeled conotoxin peptide is also useful for  
 CC characterising a new site on these receptors or channels, and for  
 CC screening and identifying novel small molecules that interact with the  
 CC above-mentioned channels or receptors, which are monamine transporters.  
 CC ABG99810-ABG99853 represent the conotoxin protein and peptides described  
 CC in the disclosure of the invention

XX Sequence 22 AA;

Query Match 79.7%; Score 102; DB 5; Length 22;  
 Best Local Similarity 88.2%; Pred. No. 7.4e-05;  
 Matches 19; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 3 CCNPACGPNYCGTSCS 19  
 DB 3 CCHPACGPNYCGTSCS 19

## RESULT 13

ABG99626

ID ABG99626 standard; peptide; 22 AA.

XX AC ABG99626;

XX 17-JAN-2003 (first entry)

XX Conus sp conotoxin-associated peptide SEQ ID 390.



XX Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;  
 KW ligand-gated ion channel modulator; pain-relief.  
 XX Conus rattus.  
 XX WO200264740-A2.  
 XX 22-AUG-2002.  
 XX 11-FEB-2002; 2002WO-US003887.  
 XX 09-FEB-2001; 2001US-0267408P.  
 XX (COGN-) COGNETIX INC.  
 XX (UTAH ) UNIV UTAH RES FOUND.  
 XX Olivera BM, McIntosh JM, Watkins M, Garrett JE, Cruz LJ;  
 PI Grillely M, Walker CS, Shetty R, Jones RM, Schoenfeld RM;  
 XX WPI; 2002-706921/76.  
 DR Claim 1; Page 251; 305pp; English.  
 XX This invention describes novel conotoxin peptides from the cone snail,  
 CC genus Conus which have analgesic activity and can act as a voltage-gated  
 CC ion channel modulator or a ligand-gated ion channel modulator. The  
 CC conotoxin peptide is useful as a pain-relieving agent for alleviating  
 CC pain in an individual who is either exhibiting pain or is about to be  
 CC subjected to a pain-causing event. The conotoxin peptide is also useful  
 CC for treating or preventing disorders associated with voltage-gated ion  
 CC channel disorders, ligand-gated ion channel disorders or receptor  
 CC disorders. The radiolabeled conotoxin peptide is also useful for  
 CC characterising a new site on these receptors or channels, and for  
 CC screening and identifying novel small molecules that interact with the  
 CC above-mentioned channels or receptors, which are monoamine transporters.  
 CC ASG99360-ABG99853 represent the conotoxin protein and peptides described  
 CC in the disclosure of the invention  
 XX Sequence 22 AA;  
 SQ Query Match 79.7%; Score 102; DB 5; Length 22;  
 Best Local Similarity 84.2%; Pred. No. 7.4e-05;  
 Matches 16; Conservative 0; Mismatches 3; Indels 0; Gaps 0;  
 QY 1 GCCCNACGPNYCGTSCS 19  
 ||||| ||||| ||||| ||||| |||||  
 DB 1 GCCCNACGPNYCGTSCS 19  
 RESULT 14  
 ABG99621  
 ID ABG99621 standard; protein; 67 AA.  
 XX AC ABG99621;  
 XX 17-JAN-2003 (first entry)  
 XX Conus sp conotoxin-associated protein SEQ ID 383.  
 XX Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;  
 KW ligand-gated ion channel modulator; pain-relief.  
 XX Conus striatus.  
 XX WO200264740-A2.  
 XX 22-AUG-2002.

XX 11-FEB-2002; 2002WO-US003887.  
 XX 09-FEB-2001; 2001US-0267408P.  
 XX (COGN-) COGNETIX INC.  
 XX (UTAH ) UNIV UTAH RES FOUND.  
 XX Olivera BM, McIntosh JM, Watkins M, Garrett JE, Cruz LJ;  
 PI Grillely M, Walker CS, Shetty R, Jones RM, Schoenfeld RM;  
 XX WPI; 2002-706921/76.  
 DR N-PSDB; ABX04947.  
 XX New cone snail conotoxin peptides, useful as a pain reliever for  
 PT alleviating pain in an individual suffering from pain or who is about to  
 PT be subjected to a pain-causing event, or for treating voltage-gated ion  
 PT channel disorders.  
 XX Claim 1; Page 249; 305pp; English.  
 XX This invention describes novel conotoxin peptides from the cone snail,  
 CC genus Conus which have analgesic activity and can act as a voltage-gated  
 CC ion channel modulator or a ligand-gated ion channel modulator. The  
 CC conotoxin peptide is useful as a pain-relieving agent for alleviating  
 CC pain in an individual who is either exhibiting pain or is about to be  
 CC subjected to a pain-causing event. The conotoxin peptide is also useful  
 CC for treating or preventing disorders associated with voltage-gated ion  
 CC channel disorders, ligand-gated ion channel disorders or receptor  
 CC disorders. The radiolabeled conotoxin peptide is also useful for  
 CC characterising a new site on these receptors or channels, and for  
 CC screening and identifying novel small molecules that interact with the  
 CC above-mentioned channels or receptors, which are monoamine transporters.  
 CC ASG99360-ABG99853 represent the conotoxin protein and peptides described  
 CC in the disclosure of the invention  
 XX Sequence 67 AA;  
 SQ Query Match 79.7%; Score 102; DB 5; Length 67;  
 Best Local Similarity 88.2%; Pred. No. 0.00018;  
 Matches 15; Conservative 1; Mismatches 1; Indels 0; Gaps 0;  
 QY 3 CCNPACGPNYCGTSCS 19  
 ||:||||| ||||| |||||  
 DB 48 CCHPACGPNYCGTSCS 64  
 RESULT 15  
 AAB15108  
 ID AAB15108 standard; peptide; 25 AA.  
 XX AC AAB15108;  
 XX 12-MAR-2001 (first entry)  
 XX Class I alpha-conotoxin peptide S2.  
 XX Class I alpha-conotoxin; neuromuscular; nicotinic acetylcholine receptor;  
 KW neuromuscular blocking agent; muscle relaxant; anaesthesia;  
 KW benign essential blepharospasm; focal dystonia; anti-wrinkle agent.  
 XX Conus sp.  
 XX Key Location/Qualifiers  
 FT Misc-difference 5 /label= Pro, OTHER  
 FT /note= "OTHER = hydroxy-Pro"  
 FT Misc-difference 9  
 FT /label= Pro, OTHER  
 FT /note= "OTHER = hydroxy-Pro"  
 FT Misc-difference 11  
 FT /label= Tyr, OTHER  
 FT /note= "OTHER = mono-halo-Tyr, di-halo-Tyr, O-sulpho-Tyr,

FT O-phospho-Tyr, nitro-Tyr"  
FT Misc-difference 20 /label= Pro, OTHER  
FT /note= "OTHER = hydroxy-Pro"  
FT Misc-difference 22 /label= Glu, OTHER  
FT /note= "OTHER = gamma-carboxy-Glu"  
FT Misc-difference 23 /label= Pro, OTHER  
FT /note= "OTHER = hydroxy-Pro"  
XX  
PN WO200043409-A2.  
XX  
XX 27-JUL-2000.  
XX  
XX 21-JAN-2000; 2000WO-US001372.  
XX  
XX 22-JAN-1999; 99US-0116881P.  
XX 22-JAN-1999; 99US-0116882P.  
XX (UTAH ) UNIV UTAH RES FOUND.  
PA (COGN-) COGNETIX INC.  
XX  
XX Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;  
PI Jones RM;  
XX  
XX WPI; 2000-499215/44.  
DR  
XX  
XX New alpha-conotoxin peptides, 10-25 residues in length, useful as  
PT neuromuscular blocking agents (e.g. as muscle relaxants) during surgical  
PT procedures requiring anesthesia and musculoskeletal relaxation.  
XX  
PS Claim 1; Page 38; 95pp; English.  
XX  
XX Alpha-conotoxins are small peptides, which are highly specific for  
CC neuromuscular junction nicotinic acetylcholine receptors. The present  
CC sequence is a class I alpha-conotoxin peptide. The present peptide is  
CC useful as a neuromuscular blocking agent (e.g. as a muscle relaxant)  
CC during surgical procedures requiring anaesthesia and musculoskeletal  
CC relaxation, for treating benign essential blepharospasm and other forms  
CC of focal dystonia. The present peptide is also useful as an anti-wrinkle  
CC agent  
XX  
SQ Sequence 25 AA;  
  
Query Match 75.0%; Score 96; DB 3; Length 25;  
Best Local Similarity 83.3%; Pred. No. 0.00039;  
Matches 15; Conservative 0; Mismatches 3; Indels 0; Gaps 0;  
  
QY 2 CCCNPACGPNYGGTSCS 19  
Db 1 CCCNXACGXNXXGGTSCS 18  
  
Search completed: March 23, 2005, 00:03:09  
Job time : 62.4521 secs

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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:51:32 ; Search time 15.363 Seconds  
(without alignments)  
92.321 Million cell updates/sec

Title: US-09-787-082A-23

Perfect score: 128

Sequence: 1 GCCCNPACGNYCGTSCS 19

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Issued Patents AA:\*

1: /cgn2\_6/ptodata/1/iaa/5A COMB.pep.\*  
2: /cgn2\_6/ptodata/1/iaa/5B COMB.pep.\*  
3: /cgn2\_6/ptodata/1/iaa/6A COMB.pep.\*  
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	128	100.0	20	1	US-08-137-800-10
2	128	100.0	20	1	US-08-477-383-10
3	128	100.0	20	1	US-08-487-174-10
4	128	100.0	20	1	US-08-480-750-10
5	128	100.0	20	5	PCT-US96-07962-7
6	128	100.0	22	1	US-08-477-383-55
7	128	100.0	22	1	US-08-487-174-55
8	128	100.0	22	1	US-08-480-750-55
9	128	100.0	67	3	US-09-488-799-41
10	128	100.0	72	1	US-08-137-800-38
11	128	100.0	72	1	US-08-477-383-38
12	128	100.0	72	1	US-08-487-174-38
13	128	100.0	72	1	US-08-480-750-38
14	122	95.3	25	3	US-09-488-799-45
15	96	75.0	25	3	US-09-488-799-7
16	83	64.8	61	3	US-09-488-799-61
17	79	61.7	19	3	US-09-488-799-83
18	79	61.7	59	3	US-09-488-799-31
19	79	61.7	64	1	US-08-137-800-37
20	79	61.7	64	1	US-08-137-800-39
21	79	61.7	64	1	US-08-477-383-37
22	79	61.7	64	1	US-08-477-383-39
23	79	61.7	64	1	US-08-487-174-37
24	79	61.7	64	1	US-08-487-174-39
25	79	61.7	64	1	US-08-480-750-37
26	79	61.7	64	1	US-08-480-750-39
27	77	60.2	59	3	US-09-488-799-39

28 75 58.6 24 2 US-07-733-095B-20  
29 75 58.6 59 3 US-09-488-799-75  
30 73 57.0 13 1 US-08-137-800-8  
31 73 57.0 13 1 US-08-477-383-8  
32 73 57.0 13 1 US-08-487-174-8  
33 73 57.0 13 1 US-08-480-750-8  
34 73 57.0 13 5 PCT-US96-07962-5  
35 73 57.0 14 1 US-08-137-800-34  
36 73 57.0 14 1 US-08-477-383-34  
37 73 57.0 14 1 US-08-487-174-34  
38 73 57.0 14 1 US-08-480-750-34  
39 71 55.5 15 1 US-08-137-800-5  
40 71 55.5 15 1 US-08-477-383-5  
41 71 55.5 15 1 US-08-487-174-5  
42 71 55.5 15 1 US-08-480-750-5  
43 71 55.5 15 5 PCT-US96-07962-2  
44 71 55.5 59 3 US-09-488-799-29  
45 71 55.5 64 1 US-07-689-693B-13

## ALIGNMENTS

RESULT 1  
US-08-137-800-10  
; Sequence 10, Application US/08137800  
; Patent No. 5514774  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Cruz, Lourdes J.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Santos, Ameurifina D.  
; TITLE OF INVENTION: Conotoxin Peptides  
; NUMBER OF SEQUENCES: 53  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
; STREET: 1201 New York Avenue N.W., Suite 1000  
; CITY: Washington  
; STATE: DC  
; ZIP: 20005  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: WordPerfect 5.1  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/137,800  
; FILING DATE: 19-OCT-1993  
; CLASSIFICATION: 530  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Ihnen, Jeffrey L.  
; REGISTRATION NUMBER: 28,957  
; REFERENCE/DOCKET NUMBER: 24260-104763  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 202-962-4810  
; TELEFAX: 202-962-8300  
; INFORMATION FOR SEQ ID NO: 10:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 20 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: peptide  
; HYPOTHETICAL: NO  
; ANTI-SENSE: NO  
; ORIGINAL SOURCE:  
; ORGANISM: Comus striatus  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 19..20  
; OTHER INFORMATION: /note= "Xaa may be des-Xaa or  
; OTHER INFORMATION: Arg-Thr-Leu"  
US-08-137-800-10

Query Match 100.0%; Score 128; DB 1; Length 20;  
Best Local Similarity 100.0%; Pred. No. 7.7e-08;  
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCCNPACGPNYCGTSCS 19  
|||||  
Db 1 GCCCNPACGPNYCGTSCS 19  
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RESULT 2  
US-08-477-383-10  
; Sequence 10, Application US/08477383  
; Patent No. 559340  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Cruz, Lourdes J.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: Macintosh, J. Michael  
; APPLICANT: Santos, Ameurfino S.  
; TITLE OF INVENTION: Conotoxin Peptides  
; NUMBER OF SEQUENCES: 59  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
; STREET: 1201 New York Avenue, N.W., Suite 1000  
; CITY: Washington  
; STATE: DC  
; COUNTRY: U.S.A.  
; ZIP: 20005  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.30  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/477,383  
; FILING DATE: 07-JUN-1995  
; CLASSIFICATION: 435  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/137,800  
; FILING DATE: 19-OCT-1993  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/084,848  
; FILING DATE: 29-JUN-1993  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Innen, Jeffrey L.  
; REGISTRATION NUMBER: 28,957  
; REFERENCE/DOCKET NUMBER: 24260-107673  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 202-962-4810  
; TELEFAX: 202-962-8300  
; INFORMATION FOR SEQ ID NO: 10:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 20 amino acids  
; TYPE: amino acid  
; STRANDEDNESS:  
; TOPOLOGY: linear  
; MOLECULE TYPE: peptide  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; ORGANISM: Conus striatus  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 20  
; OTHER INFORMATION: /note= "Xaa may be des-Xaa or  
; OTHER INFORMATION: Arg-Thr-Leu."  
US-08-477-383-10

Query Match 100.0%; Score 128; DB 1; Length 20;  
Best Local Similarity 100.0%; Pred. No. 7.7e-08;  
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCCNPACGPNYCGTSCS 19  
|||||

Db 1 GCCCNPACGPNYCGTSCS 19  
|||||

RESULT 3  
US-08-487-174-10  
; Sequence 10, Application US/08487174  
; Patent No. 559572  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Cruz, Lourdes J.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: Macintosh, J. Michael  
; APPLICANT: Santos, Ameurfino S.  
; TITLE OF INVENTION: Conotoxin Peptides  
; NUMBER OF SEQUENCES: 59  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
; STREET: 1201 New York Avenue, N.W., Suite 1000  
; CITY: Washington  
; STATE: DC  
; COUNTRY: U.S.A.  
; ZIP: 20005  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.30  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/487,174  
; FILING DATE: 07-JUN-1995  
; CLASSIFICATION: 514  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/137,800  
; FILING DATE: 19-OCT-1993  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/084,848  
; FILING DATE: 29-JUN-1993  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Innen, Jeffrey L.  
; REGISTRATION NUMBER: 28,957  
; REFERENCE/DOCKET NUMBER: 24260-107673  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 202-962-4810  
; TELEFAX: 202-962-8300  
; INFORMATION FOR SEQ ID NO: 10:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 20 amino acids  
; TYPE: amino acid  
; STRANDEDNESS:  
; TOPOLOGY: linear  
; MOLECULE TYPE: peptide  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; ORGANISM: Conus striatus  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 20  
; OTHER INFORMATION: /note= "Xaa may be des-Xaa or  
; OTHER INFORMATION: Arg-Thr-Leu."  
US-08-487-174-10

Query Match 100.0%; Score 128; DB 1; Length 20;  
Best Local Similarity 100.0%; Pred. No. 7.7e-08;  
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCCNPACGPNYCGTSCS 19  
|||||

Db 1 GCCCNPACGPNYCGTSCS 19  
|||||

RESULT 4  
US-08-480-750-10

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; Sequence 10, Application US/08480750
; Patent No. 5633347
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cruz, Lourdes J.
; APPLICANT: Hillyard, David R.
; APPLICANT: Macintosh, J. Michael
; APPLICANT: Santos, Ameurfino S.
; TITLE OF INVENTION: Conotoxin Peptides
; NUMBER OF SEQUENCES: 59
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti
; STREET: 1201 New York Avenue, N.W., Suite 1000
; CITY: Washington
; STATE: DC
; COUNTRY: U.S.A.
; ZIP: 20005
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/480,750
; FILING DATE: 07-JUN-1995
; CLASSIFICATION: 530
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/137,800
; FILING DATE: 19-OCT-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/084,848
; FILING DATE: 29-JUN-1993
; ATTORNEY/AGENT INFORMATION:
; NAME: Ihnen, Jeffrey L.
; REGISTRATION NUMBER: 28,957
; REFERENCE/DOCKET NUMBER: 24260-107673
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 202-962-8300
; TELEFAX: 202-962-8310
; INFORMATION FOR SEQ ID NO: 10:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 20 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; ORGANISM: Conus striatus
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 20
; OTHER INFORMATION: /note= "Xaa may be des-Xaa or
; OTHER INFORMATION: Arg-Thr-Leu."
; US-08-480-750-10

Query Match 100.0%; Score 128; DB 1; Length 20;
Best Local Similarity 100.0%; Pred. No. 7.7e-08;
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCCCNPACGPNYCGTSCS 19
Db 1 GCCCNPACGPNYCGTSCS 19

RESULT 5
PCT-US96-07962-7
; Sequence 7, Application PC/TUS9607962
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; TITLE OF INVENTION: Use of Conotoxin Peptides U002 and MII
; TITLE OF INVENTION: for Treating or Detecting Small-Cell Lung Carcinoma
; NUMBER OF SEQUENCES: 10

```

```

; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti
; STREET: 1201 New York Avenue, N.W., Suite 1000
; CITY: Washington
; STATE: DC
; COUNTRY: U.S.A.
; ZIP: 20005
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: MS-WINDOWS
; SOFTWARE: Word 6.0
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: PCT/US96/07962
; FILING DATE: 04-JUN-1996
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/487,174
; FILING DATE: 07-JUN-1995
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 202-962-4810
; TELEFAX: 202-962-8300
; INFORMATION FOR SEQ ID NO: 7:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 20 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; ORGANISM: Conus striatus
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 20
; OTHER INFORMATION: /note= "Xaa may be des-Xaa or
; OTHER INFORMATION: Arg-Thr-Leu."
; PCT-US96-07962-7

Query Match 100.0%; Score 128; DB 5; Length 20;
Best Local Similarity 100.0%; Pred. No. 7.7e-08;
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCCCNPACGPNYCGTSCS 19
Db 1 GCCCNPACGPNYCGTSCS 19

RESULT 6
US-08-477-383-55
; Sequence 55, Application US/08477383
; Patent No. 5589340
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cruz, Lourdes J.
; APPLICANT: Hillyard, David R.
; APPLICANT: Macintosh, J. Michael
; APPLICANT: Santos, Ameurfino S.
; TITLE OF INVENTION: Conotoxin Peptides
; NUMBER OF SEQUENCES: 59
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti
; STREET: 1201 New York Avenue, N.W., Suite 1000
; CITY: Washington
; STATE: DC
; COUNTRY: U.S.A.
; ZIP: 20005
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:

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/ APPLICATION NUMBER: US/08/477,383
/ FILING DATE: 07-JUN-1995
/ CLASSIFICATION: 435
/ PRIOR APPLICATION DATA:
/ APPLICATION NUMBER: US 08/137,800
/ FILING DATE: 19-OCT-1993
/ PRIOR APPLICATION DATA:
/ APPLICATION NUMBER: US 08/084,848
/ FILING DATE: 29-JUN-1993
/ ATTORNEY/AGENT INFORMATION:
/ NAME: Ihnen, Jeffrey L.
/ REGISTRATION NUMBER: 28,957
/ REFERENCE/DOCKET NUMBER: 24260-107673
/ TELECOMMUNICATION INFORMATION:
/ TELEPHONE: 202-962-4810
/ INFORMATION FOR SEQ ID NO: 55:
/ SEQUENCE CHARACTERISTICS:
/ LENGTH: 22 amino acids
/ TYPE: amino acid
/ STRANDEDNESS:
/ TOPOLOGY: linear
/ MOLECULE TYPE: peptide
/ HYPOTHETICAL: NO
/ ORIGINAL SOURCE:
/ ORGANISM: Conus striatus
/ US-08-477-383-55

Query Match 100.0%; Score 128; DB 1; Length 22;
Best Local Similarity 100.0%; Pred. No. 8.3e-08;
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCNPACGPNYCGTSCS 19
Db 1 GCCNPACGPNYCGTSCS 19

RESULT 7
US-08-487-174-55
; Sequence 55, Application US/08487174
; Patent No. 5595972
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cruz, Lourdes J.
; APPLICANT: Hillyard, David R.
; APPLICANT: Macintosh, J. Michael
; APPLICANT: Santos, Ameurfino S.
; TITLE OF INVENTION: Conotoxin Peptides
; NUMBER OF SEQUENCES: 59
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti
; STREET: 1201 New York Avenue, N.W., Suite 1000
; CITY: Washington
; STATE: DC
; COUNTRY: U.S.A.
; ZIP: 20005
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/487,174
; FILING DATE: 07-JUN-1995
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/137,800
; FILING DATE: 19-OCT-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/084,848
; FILING DATE: 29-JUN-1993
; ATTORNEY/AGENT INFORMATION:
; NAME: Ihnen, Jeffrey L.
; REGISTRATION NUMBER: 28,957
; REFERENCE/DOCKET NUMBER: 24260-107673
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 202-962-4810
; INFORMATION FOR SEQ ID NO: 55:
/ SEQUENCE CHARACTERISTICS:
/ LENGTH: 22 amino acids
/ TYPE: amino acid
/ STRANDEDNESS:
/ TOPOLOGY: linear

US-08-477-383-55

Query Match 100.0%; Score 128; DB 1; Length 22;
Best Local Similarity 100.0%; Pred. No. 8.3e-08;
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCNPACGPNYCGTSCS 19
Db 1 GCCNPACGPNYCGTSCS 19

RESULT 8
US-08-480-750-55
; Sequence 55, Application US/08480750
; Patent No. 5633347
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cruz, Lourdes J.
; APPLICANT: Hillyard, David R.
; APPLICANT: Macintosh, J. Michael
; APPLICANT: Santos, Ameurfino S.
; TITLE OF INVENTION: Conotoxin Peptides
; NUMBER OF SEQUENCES: 59
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti
; STREET: 1201 New York Avenue, N.W., Suite 1000
; CITY: Washington
; STATE: DC
; COUNTRY: U.S.A.
; ZIP: 20005
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/480,750
; FILING DATE: 07-JUN-1995
; CLASSIFICATION: 530
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/137,800
; FILING DATE: 19-OCT-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/084,848
; FILING DATE: 29-JUN-1993
; ATTORNEY/AGENT INFORMATION:
; NAME: Ihnen, Jeffrey L.
; REGISTRATION NUMBER: 28,957
; REFERENCE/DOCKET NUMBER: 24260-107673
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 202-962-4810
; INFORMATION FOR SEQ ID NO: 55:
/ SEQUENCE CHARACTERISTICS:
/ LENGTH: 22 amino acids
/ TYPE: amino acid
/ STRANDEDNESS:
/ TOPOLOGY: linear
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; MOLECULE TYPE: peptide
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; ORGANISM: Conus striatus
US-08-480-750-55

Query Match      100.0%; Score 128; DB 1; Length 22;
Best Local Similarity 100.0%; Pred. No. 8.3e-08;
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCCCNPCAGPNYGGTSCS 19
Db 1 GCCCNPCAGPNYGGTSCS 19

RESULT 9
US-09-488-799-41
; Sequence 41, Application US/09488799
; Patent No. 6268473
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Layer, Richard T.
; APPLICANT: Watkins, Maren
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Schoenfeld, Robert
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: Alpha Conotoxin Peptides
; FILE REFERENCE: Alphas 1
; CURRENT APPLICATION NUMBER: US/09/488,799
; CURRENT FILING DATE: 2000-01-21
; EARLIER APPLICATION NUMBER: 60/116,881
; EARLIER FILING DATE: 1999-01-22
; EARLIER APPLICATION NUMBER: 60/116,882
; EARLIER FILING DATE: 1999-01-22
; NUMBER OF SEQ ID NOS: 101
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 41
; LENGTH: 67
; TYPE: PRT
; ORGANISM: Conus striatus
US-09-488-799-41

Query Match      100.0%; Score 128; DB 3; Length 67;
Best Local Similarity 100.0%; Pred. No. 2.1e-07;
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCCCNPCAGPNYGGTSCS 19
Db 46 GCCCNPCAGPNYGGTSCS 64

RESULT 10
US-08-137-800-38
; Sequence 38, Application US/08137800
; Patent No. 5514774
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cruz, Lourdes J.
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Santos, Ameurfin D.
; TITLE OF INVENTION: Conotoxin Peptides
; NUMBER OF SEQUENCES: 53
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti
; STREET: 1201 New York Avenue N.W., Suite 1000
; CITY: Washington
; STATE: DC
; ZIP: 20005
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: IBM PC compatible
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/477,383
; FILING DATE: 07-JUN-1995
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/137,800
; FILING DATE: 19-OCT-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/084,848
; FILING DATE: 29-JUN-1993
; ATTORNEY/AGENT INFORMATION:
; NAME: Ihnen, Jeffrey L.
; REGISTRATION NUMBER: 28,957
; REFERENCE/DOCKET NUMBER: 24260-107673
; TELECOMMUNICATION INFORMATION:
; COMPUTER: IBM PC compatible
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; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Wordperfect 5.1
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/137,800
; FILING DATE: 19-OCT-1993
; CLASSIFICATION: 530
; ATTORNEY/AGENT INFORMATION:
; NAME: Ihnen, Jeffrey L.
; REGISTRATION NUMBER: 28,957
; REFERENCE/DOCKET NUMBER: 24260-104763
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 202-962-4810
; TELEFAX: 202-962-8300
; INFORMATION FOR SEQ ID NO: 38:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 72 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; HYPOTHETICAL: NO
; ANTI-SENSE: NO
; ORIGINAL SOURCE:
; ORGANISM: Conus striatus
US-08-137-800-38

Query Match      100.0%; Score 128; DB 1; Length 72;
Best Local Similarity 100.0%; Pred. No. 2.2e-07;
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCCCNPCAGPNYGGTSCS 19
Db 51 GCCCNPCAGPNYGGTSCS 69

RESULT 11
US-08-477-383-38
; Sequence 38, Application US/08477383
; Patent No. 5589340
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cruz, Lourdes J.
; APPLICANT: Hillyard, David R.
; APPLICANT: Macintosh, J. Michael
; APPLICANT: Santos, Ameurfin S.
; TITLE OF INVENTION: Conotoxin Peptides
; NUMBER OF SEQUENCES: 59
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti
; STREET: 1201 New York Avenue, N.W., Suite 1000
; CITY: Washington
; STATE: DC
; COUNTRY: U.S.A.
; ZIP: 20005
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/477,383
; FILING DATE: 07-JUN-1995
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/137,800
; FILING DATE: 19-OCT-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/084,848
; FILING DATE: 29-JUN-1993
; ATTORNEY/AGENT INFORMATION:
; NAME: Ihnen, Jeffrey L.
; REGISTRATION NUMBER: 28,957
; REFERENCE/DOCKET NUMBER: 24260-107673
; TELECOMMUNICATION INFORMATION:
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; TELEPHONE: 202-962-4810
; TELEFAX: 202-962-8300
; INFORMATION FOR SEQ ID NO: 38:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 72 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; ORGANISM: Conus striatus
; US-08-477-383-38

Query Match 100.0%; Score 128; DB 1; Length 72;
Best Local Similarity 100.0%; Pred. No. 2.2e-07;
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCCNACGPNYCGTSCS 19
Db 51 GCCCNACGPNYCGTSCS 69

RESULT 12
US-08-487-174-38
; Sequence 38, Application US/08487174
; Patent No. 5595972
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cruz, Lourdes J.
; APPLICANT: Hillyard, David R.
; APPLICANT: Macintosh, J. Michael
; APPLICANT: Santos, Ameurfino S.
; TITLE OF INVENTION: Conotoxin Peptides
; NUMBER OF SEQUENCES: 59
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti
; STREET: 1201 New York Avenue, N.W., Suite 1000
; CITY: Washington
; STATE: DC
; COUNTRY: U.S.A.
; ZIP: 20005
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/487,174
; FILING DATE: 07-JUN-1995
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/137,800
; FILING DATE: 19-OCT-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/084,848
; FILING DATE: 29-JUN-1993
; ATTORNEY/AGENT INFORMATION:
; NAME: Ihnen, Jeffrey L.
; REGISTRATION NUMBER: 28,957
; REFERENCE/DOCKET NUMBER: 24260-107673
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 202-962-4810
; TELEFAX: 202-962-8300
; INFORMATION FOR SEQ ID NO: 38:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 72 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; ORGANISM: Conus striatus
; US-08-477-383-38

Query Match 100.0%; Score 128; DB 1; Length 72;
Best Local Similarity 100.0%; Pred. No. 2.2e-07;
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCCNACGPNYCGTSCS 19
Db 51 GCCCNACGPNYCGTSCS 69

RESULT 13
US-08-480-750-38
; Sequence 38, Application US/08480750
; Patent No. 5633347
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Cruz, Lourdes J.
; APPLICANT: Hillyard, David R.
; APPLICANT: Macintosh, J. Michael
; APPLICANT: Santos, Ameurfino S.
; TITLE OF INVENTION: Conotoxin Peptides
; NUMBER OF SEQUENCES: 59
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti
; STREET: 1201 New York Avenue, N.W., Suite 1000
; CITY: Washington
; STATE: DC
; COUNTRY: U.S.A.
; ZIP: 20005
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/480,750
; FILING DATE: 07-JUN-1995
; CLASSIFICATION: 530
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/137,800
; FILING DATE: 19-OCT-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/084,848
; FILING DATE: 29-JUN-1993
; ATTORNEY/AGENT INFORMATION:
; NAME: Ihnen, Jeffrey L.
; REGISTRATION NUMBER: 28,957
; REFERENCE/DOCKET NUMBER: 24260-107673
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 202-962-4810
; TELEFAX: 202-962-8300
; INFORMATION FOR SEQ ID NO: 38:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 72 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; ORGANISM: Conus striatus
; US-08-480-750-38

Query Match 100.0%; Score 128; DB 1; Length 72;
Best Local Similarity 100.0%; Pred. No. 2.2e-07;
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCCNACGPNYCGTSCS 19
Db 51 GCCCNACGPNYCGTSCS 69
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## RESULT 14

US-09-488-799-45  
; Sequence 45, Application US/09488799  
; Patent No. 6268473  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Layer, Richard T.  
; APPLICANT: Watkins, Maren  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Schoenfeld, Robert  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha Conotoxin Peptides  
; FILE REFERENCE: Alphas 1  
; CURRENT APPLICATION NUMBER: US/09/488,799  
; CURRENT FILING DATE: 2000-01-21  
; EARLIER APPLICATION NUMBER: 60/116,881  
; EARLIER FILING DATE: 1999-01-22  
; EARLIER APPLICATION NUMBER: 60/116,882  
; EARLIER FILING DATE: 1999-01-22  
; NUMBER OF SEQ ID NOS: 101  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 45  
; LENGTH: 25  
; TYPE: PRT  
; ORGANISM: Conus striatus  
US-09-488-799-45

Query Match 95.3%; Score 122; DB 3; Length 25;  
Best Local Similarity 100.0%; Pred. No. 4.1e-07;  
Matches 18; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 CCNPPACGPNYGCSTCS 19  
Db 1 CCNPPACGPNYGCSTCS 18

## RESULT 15

US-09-488-799-7  
; Sequence 7, Application US/09488799  
; Patent No. 6268473  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Layer, Richard T.  
; APPLICANT: Watkins, Maren  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Schoenfeld, Robert  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha Conotoxin Peptides  
; FILE REFERENCE: Alphas 1  
; CURRENT APPLICATION NUMBER: US/09/488,799  
; CURRENT FILING DATE: 2000-01-21  
; EARLIER APPLICATION NUMBER: 60/116,881  
; EARLIER FILING DATE: 1999-01-22  
; EARLIER APPLICATION NUMBER: 60/116,882  
; EARLIER FILING DATE: 1999-01-22  
; NUMBER OF SEQ ID NOS: 101  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 7  
; LENGTH: 25  
; TYPE: PRT  
; ORGANISM: Artificial Sequence  
; FEATURE:  
; OTHER INFORMATION: Description of Artificial Sequence:generic  
; OTHER INFORMATION: sequence for Conus striatus S2  
; FEATURE:  
; NAME/KEY: PEPTIDE  
; LOCATION: (5)..(20)  
; OTHER INFORMATION: Xaa at residues 5, 9 and 20 may be Pro or  
; OTHER INFORMATION: hydroxy-Pro; Xaa at residue 11 may be Tyr,  
; OTHER INFORMATION: mono-halo-Tyr, di-halo-Tyr, O-sulpho-Tyr,

; OTHER INFORMATION: O-phospho-Tyr or nitro-Tyr.

; FEATURE:

; NAME/KEY: PEPTIDE

; LOCATION: (22)..(23)

; OTHER INFORMATION: Xaa at residue 22 may be Glu or gamma-carboxy-Glu;  
; OTHER INFORMATION: Xaa at residue 223 may be Pro or hydroxy-Pro.

US-09-488-799-7

Query Match 75.0%; Score 96; DB 3; Length 25;  
Best Local Similarity 83.3%; Pred. No. 0.00026;  
Matches 15; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

Qy 2 CCNPPACGPNYGCSTCS 19  
Db 1 CCNPPACGPNYGCSTCS 18

Search completed: March 23, 2005, 00:20:52  
Job time : 16.363 secs

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OM protein - protein search, using sw model

Run on: March 22, 2005, 23:46:47 ; Search time 43.33 Seconds

(without alignments)  
144.941 Million cell updates/sec

Title: US-09-787-082A-23

Perfect score: 128

Sequence: 1 GCCCNPACGPNYGCCTSCS 19

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1401741 seqs, 330541175 residues

Total number of hits satisfying chosen parameters: 1401741

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Published Applications AA.\*

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- 2: /cgn2\_6/ptodata/2/pubpaa/PCT\_NEW\_PUB.pep.\*
- 3: /cgn2\_6/ptodata/2/pubpaa/US06\_NEW\_PUB.pep.\*
- 4: /cgn2\_6/ptodata/2/pubpaa/US06\_PUBCOMB.pep.\*
- 5: /cgn2\_6/ptodata/2/pubpaa/US07\_NEW\_PUB.pep.\*
- 6: /cgn2\_6/ptodata/2/pubpaa/PCTUS\_PUBCOMB.pep.\*
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- 8: /cgn2\_6/ptodata/2/pubpaa/US08\_PUBCOMB.pep.\*
- 9: /cgn2\_6/ptodata/2/pubpaa/US09A\_PUBCOMB.pep.\*
- 10: /cgn2\_6/ptodata/2/pubpaa/US09B\_PUBCOMB.pep.\*
- 11: /cgn2\_6/ptodata/2/pubpaa/US09C\_PUBCOMB.pep.\*
- 12: /cgn2\_6/ptodata/2/pubpaa/US09\_NEW\_PUB.pep.\*
- 13: /cgn2\_6/ptodata/2/pubpaa/US10A\_PUBCOMB.pep.\*
- 14: /cgn2\_6/ptodata/2/pubpaa/US10B\_PUBCOMB.pep.\*
- 15: /cgn2\_6/ptodata/2/pubpaa/US10C\_PUBCOMB.pep.\*
- 16: /cgn2\_6/ptodata/2/pubpaa/US10D\_PUBCOMB.pep.\*
- 17: /cgn2\_6/ptodata/2/pubpaa/US10\_NEW\_PUB.pep.\*
- 18: /cgn2\_6/ptodata/2/pubpaa/US11\_NEW\_PUB.pep.\*
- 19: /cgn2\_6/ptodata/2/pubpaa/US60\_NEW\_PUB.pep.\*
- 20: /cgn2\_6/ptodata/2/pubpaa/US60\_PUBCOMB.pep.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	128	100.0	22	14	US-10-072-602B-597
2	128	100.0	67	10	US-09-908-741-41
3	128	100.0	67	14	US-10-072-602B-389
4	122	95.3	25	10	US-09-908-741-45
5	102	79.7	22	14	US-10-072-602B-390
6	102	79.7	22	14	US-10-072-602B-595
7	102	79.7	67	14	US-10-072-602B-383
8	96	75.0	25	10	US-09-908-741-7
9	83	64.8	61	10	US-09-908-741-61
10	79	61.7	19	10	US-09-908-741-83
11	79	61.7	59	10	US-09-908-741-31
12	77	60.2	59	10	US-09-908-741-39
13	76	59.4	22	14	US-10-072-602B-384

14	75	58.6	59	10	US-09-908-741-75	Sequence 75, Appl
15	72	56.2	15	17	US-10-833-951-28	Sequence 28, Appl
16	72	56.2	15	17	US-10-833-951-344	Sequence 344, Appl
17	71	55.5	59	10	US-09-908-741-29	Sequence 29, Appl
18	70	54.7	13	17	US-10-833-951-33	Sequence 33, Appl
19	69	53.9	37	10	US-09-908-741-79	Sequence 79, Appl
20	69	53.9	1510	14	US-10-184-644-589	Sequence 589, Appl
21	69	53.9	1510	14	US-10-184-634-589	Sequence 589, Appl
22	69	53.9	3147	15	US-10-307-817-562	Sequence 562, Appl
23	69	53.9	3147	15	US-10-307-817-563	Sequence 563, Appl
24	67.5	52.7	1377	14	US-10-123-155-361	Sequence 361, Appl
25	67.5	52.7	1377	14	US-10-146-731-361	Sequence 361, Appl
26	67.5	52.7	1377	14	US-10-140-472-361	Sequence 361, Appl
27	67.5	52.7	1377	14	US-10-141-761-361	Sequence 361, Appl
28	67.5	52.7	1377	14	US-10-142-885-361	Sequence 361, Appl
29	67.5	52.7	1377	14	US-10-158-790-361	Sequence 361, Appl
30	67.5	52.7	1377	15	US-10-137-871-361	Sequence 361, Appl
31	67.5	52.7	1377	15	US-10-140-923-361	Sequence 361, Appl
32	67.5	52.7	1377	15	US-10-141-756-361	Sequence 361, Appl
33	67.5	52.7	1377	15	US-10-141-759-361	Sequence 361, Appl
34	67.5	52.7	1377	15	US-10-140-805-361	Sequence 361, Appl
35	67.5	52.7	1377	15	US-10-140-864-361	Sequence 361, Appl
36	67.5	52.7	1377	15	US-10-142-426-361	Sequence 361, Appl
37	67.5	52.7	35346	17	US-10-874-049-2	Sequence 2, Appl
38	67	52.3	37	14	US-10-072-602B-377	Sequence 377, Appl
39	67	52.3	59	14	US-10-072-602B-380	Sequence 380, Appl
40	66.5	52.0	1941	14	US-10-123-155-165	Sequence 165, Appl
41	66.5	52.0	1941	14	US-10-146-731-165	Sequence 165, Appl
42	66.5	52.0	1941	14	US-10-140-472-165	Sequence 165, Appl
43	66.5	52.0	1941	14	US-10-141-761-165	Sequence 165, Appl
44	66.5	52.0	1941	14	US-10-142-885-165	Sequence 165, Appl
45	66.5	52.0	1941	14	US-10-158-790-165	Sequence 165, Appl

ALIGNMENTS

RESULT 1

US-10-072-602B-597  
; Sequence 597, Application US/10072602B  
; Publication No. US20030109670A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J, Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Cruz, Lourdes J.  
; APPLICANT: Grilley, Michelle  
; APPLICANT: Schoenfeld, Robert M.  
; APPLICANT: Walker, Craig  
; APPLICANT: Shetty, Reshma  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Cone Snail Peptides  
; FILE REFERENCE: 2314-249  
; CURRENT APPLICATION NUMBER: US/10/072,602B  
; CURRENT FILING DATE: 2002-02-11  
; PRIOR APPLICATION NUMBER: US 60/267,408  
; PRIOR FILING DATE: 2001-02-09  
; NUMBER OF SEQ ID NOS: 638  
; SOFTWARE: Patent in version 3.0  
; SEQ ID NO 597  
; LENGTH: 22  
; TYPE: PRT  
; ORGANISM: Conus rattus  
US-10-072-602B-597

Query Match 100.0%; Score 128; DB 14; Length 22;  
Best Local Similarity 100.0%; Pred. No. 1.3e-07;  
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCCNPACGPNYGCCTSCS 19

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Db      1  GCGGCPACGPNYGGCTSCS 19
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RESULT 2
US-09-908-741-41
; Sequence 41, Application US/09908741
; Publication No. US20030050435A1
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Layer, Richard T.
; APPLICANT: Watkins, Maren
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Schoenfeld, Robert
; APPLICANT: Jones, Robert M.
; APPLICANT: Nielsen, Jake
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; TITLE OF INVENTION: Alpha CIP
; FILE REFERENCE: Alpha CIP
; CURRENT APPLICATION NUMBER: US/09/908,741
; CURRENT FILING DATE: 2001-07-20
; PRIOR APPLICATION NUMBER: US 60/116,881
; PRIOR FILING DATE: 1999-01-22
; PRIOR APPLICATION NUMBER: US 60/116,882
; PRIOR FILING DATE: 1999-01-22
; PRIOR APPLICATION NUMBER: US 09/488,799
; PRIOR FILING DATE: 2000-01-21
; PRIOR APPLICATION NUMBER: US 60/219,407
; PRIOR FILING DATE: 2000-07-20
; PRIOR APPLICATION NUMBER: US 60/221,557
; PRIOR FILING DATE: 2000-07-28
; NUMBER OF SEQ ID NOS: 125
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 41
; LENGTH: 67
; TYPE: PRT
; ORGANISM: Conus striatus
US-09-908-741-41

Query Match      100.0%; Score 128; DB 10; Length 67;
Best Local Similarity 100.0%; Pred. No. 3.1e-07;
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY      1  GCGGCPACGPNYGGCTSCS 19
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Db      46  GCGGCPACGPNYGGCTSCS 64
|||||

RESULT 4
US-09-908-741-45
; Sequence 45, Application US/09908741
; Publication No. US20030050435A1
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Layer, Richard T.
; APPLICANT: Watkins, Maren
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Schoenfeld, Robert
; APPLICANT: Jones, Robert M.
; APPLICANT: Nielsen, Jake
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; TITLE OF INVENTION: Alpha Conotoxin Peptides
; FILE REFERENCE: Alpha CIP
; CURRENT APPLICATION NUMBER: US/09/908,741
; CURRENT FILING DATE: 2001-07-20
; PRIOR APPLICATION NUMBER: US 60/116,881
; PRIOR FILING DATE: 1999-01-22
; PRIOR APPLICATION NUMBER: US 60/116,882
; PRIOR FILING DATE: 1999-01-22
; PRIOR APPLICATION NUMBER: US 09/488,799
; PRIOR FILING DATE: 2000-01-21
; PRIOR APPLICATION NUMBER: US 60/219,407
; PRIOR FILING DATE: 2000-07-20
; PRIOR APPLICATION NUMBER: US 60/221,557
; PRIOR FILING DATE: 2000-07-28
; NUMBER OF SEQ ID NOS: 125
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 45
; LENGTH: 25
; TYPE: PRT
; ORGANISM: Conus striatus
US-09-908-741-45

Query Match      95.3%; Score 122; DB 10; Length 25;
Best Local Similarity 100.0%; Pred. No. 6.6e-07;
Matches 18; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db      1  CCGCPACGPNYGGCTSCS 18
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RESULT 5
US-10-072-602B-390
; Sequence 390, Application US/10072602B
; Publication No. US20030109670A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
```

; APPLICANT: Garrett, James E.  
 ; APPLICANT: Cruz, Lourdes J.  
 ; APPLICANT: Grilley, Michelle  
 ; APPLICANT: Schoenfeld, Robert M.  
 ; APPLICANT: Walker, Craig  
 ; APPLICANT: Shetty, Reshma  
 ; APPLICANT: Jones, Robert M.  
 ; TITLE OF INVENTION: Cone Snail Peptides  
 ; FILE REFERENCE: 2314-249  
 ; CURRENT APPLICATION NUMBER: US/10/072,602B  
 ; PRIOR FILING DATE: 2002-02-11  
 ; PRIOR APPLICATION NUMBER: US 60/267,408  
 ; PRIOR FILING DATE: 2001-02-09  
 ; NUMBER OF SEQ ID NOS: 638  
 ; SOFTWARE: PatentIn version 3.0  
 ; SEQ ID NO 390  
 ; LENGTH: 22  
 ; TYPE: PRT  
 ; ORGANISM: *Conus rattus*  
 ; FEATURE:  
 ; NAME/KEY: PEPTIDE  
 ; LOCATION: (1)..(22)  
 ; OTHER INFORMATION: Xaa at residues 6 and 10 is Pro or hydroxy-Pro; Xaa at residue  
 ; OTHER INFORMATION: 12 is Tyr, 1251-Tyr, mono-iodo-Tyr, di-iodo-Tyr, O-sulpho-Tyr  
 ; OTHER INFORMATION: or O-phospho-Tyr  
 US-10-072-602B-390

Query Match 79.7%; Score 102; DB 14; Length 22;  
 Best Local Similarity 84.2%; Pred. No. 9.6e-05;  
 Matches 16; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 GCCCNACGPNYCGTSCS 19  
 |||:|||||  
 DB 1 GCCCNACGPNYCGTSCS 19

RESULT 6  
 US-10-072-602B-595  
 ; Sequence 595, Application US/10072602B  
 ; Publication No. US20030109670A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: University of Utah Research Foundation  
 ; APPLICANT: Cognetix, Inc.  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Garrett, James E.  
 ; APPLICANT: Cruz, Lourdes J.  
 ; APPLICANT: Grilley, Michelle  
 ; APPLICANT: Schoenfeld, Robert M.  
 ; APPLICANT: Walker, Craig  
 ; APPLICANT: Shetty, Reshma  
 ; APPLICANT: Jones, Robert M.  
 ; TITLE OF INVENTION: Cone Snail Peptides  
 ; FILE REFERENCE: 2314-249  
 ; CURRENT APPLICATION NUMBER: US/10/072,602B  
 ; CURRENT FILING DATE: 2002-02-11  
 ; PRIOR APPLICATION NUMBER: US 60/267,408  
 ; PRIOR FILING DATE: 2001-02-09  
 ; NUMBER OF SEQ ID NOS: 638  
 ; SOFTWARE: PatentIn version 3.0  
 ; SEQ ID NO 595  
 ; LENGTH: 22  
 ; TYPE: PRT  
 ; ORGANISM: *Conus striatus*  
 US-10-072-602B-595

Query Match 79.7%; Score 102; DB 14; Length 22;  
 Best Local Similarity 88.2%; Pred. No. 9.6e-05;  
 Matches 15; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 3 CCNPACGPNYCGTSCS 19  
 ||:|||||  
 ||:|||||

DB 3 CCHPACGPNYCGTSCS 19

RESULT 7  
 US-10-072-602B-383  
 ; Sequence 383, Application US/10072602B  
 ; Publication No. US20030109670A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: University of Utah Research Foundation  
 ; APPLICANT: Cognetix, Inc.  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Garrett, James E.  
 ; APPLICANT: Cruz, Lourdes J.  
 ; APPLICANT: Grilley, Michelle  
 ; APPLICANT: Schoenfeld, Robert M.  
 ; APPLICANT: Walker, Craig  
 ; APPLICANT: Shetty, Reshma  
 ; APPLICANT: Jones, Robert M.  
 ; TITLE OF INVENTION: Cone Snail Peptides  
 ; FILE REFERENCE: 2314-249  
 ; CURRENT APPLICATION NUMBER: US/10/072,602B  
 ; CURRENT FILING DATE: 2002-02-11  
 ; PRIOR APPLICATION NUMBER: US 60/267,408  
 ; PRIOR FILING DATE: 2001-02-09  
 ; NUMBER OF SEQ ID NOS: 638  
 ; SOFTWARE: PatentIn version 3.0  
 ; SEQ ID NO 383  
 ; LENGTH: 67  
 ; TYPE: PRT  
 ; ORGANISM: *Conus striatus*  
 US-10-072-602B-383

Query Match 79.7%; Score 102; DB 14; Length 67;  
 Best Local Similarity 88.2%; Pred. No. 0.00023;  
 Matches 15; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 3 CCNPACGPNYCGTSCS 19  
 ||:|||||  
 DB 48 CCHPACGPNYCGTSCS 64

RESULT 8  
 US-09-908-741-7  
 ; Sequence 7, Application US/09908741  
 ; Publication No. US20030050435A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: Layer, Richard T.  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Hilliard, David R.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Schoenfeld, Robert  
 ; APPLICANT: Jones, Robert M.  
 ; APPLICANT: Nielsen, Jake  
 ; APPLICANT: University of Utah Research Foundation  
 ; APPLICANT: Cognetix, Inc.  
 ; TITLE OF INVENTION: Alpha Conotoxin Peptides  
 ; FILE REFERENCE: Alpha CIP  
 ; CURRENT APPLICATION NUMBER: US/09/908,741  
 ; CURRENT FILING DATE: 2001-07-20  
 ; PRIOR APPLICATION NUMBER: US 60/116,881  
 ; PRIOR FILING DATE: 1999-01-22  
 ; PRIOR APPLICATION NUMBER: US 60/116,882  
 ; PRIOR FILING DATE: 1999-01-22  
 ; PRIOR APPLICATION NUMBER: US 09/488,799  
 ; PRIOR FILING DATE: 2000-01-21  
 ; PRIOR APPLICATION NUMBER: US 60/219,407  
 ; PRIOR FILING DATE: 2000-07-20  
 ; PRIOR APPLICATION NUMBER: US 60/221,557  
 ; PRIOR FILING DATE: 2000-07-28  
 ; NUMBER OF SEQ ID NOS: 125

```

; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 7
; LENGTH: 25
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence:generic
; OTHER INFORMATION: sequence for Conus striatus S2
; NAME/KEY: PEPTIDE
; LOCATION: (3)..(20)
; OTHER INFORMATION: xaa at residues 5, 9 and 20 may be Pro or
; OTHER INFORMATION: hydroxy-Pro; xaa at residue 11 may be Tyr,
; OTHER INFORMATION: mono-halo-Tyr, di-halo-Tyr, O-sulpho-Tyr,
; OTHER INFORMATION: O-phospho-Tyr or nitro-Tyr.
; NAME/KEY: PEPTIDE
; LOCATION: (22)..(23)
; OTHER INFORMATION: xaa at residue 22 may be Glu or gamma-carboxy-Glu;
; OTHER INFORMATION: xaa at residue 223 may be Pro or hydroxy-Pro.
US-09-908-741-7
Query Match 75.0%; Score 96; DB 10; Length 25;
Best Local Similarity 83.3%; Pred. No. 0.00049;
Matches 15; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 2 CCNPACGPNYGGTSCS 19
|||||
Db 1 CCNPACGPNYGGTSCS 18
|||||

RESULT 9
US-09-908-741-61
; Sequence 61, Application US/09908741
; Publication No. US20030050435A1
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Layer, Richard T.
; APPLICANT: Watkins, Maren
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Schoenfeld, Robert
; APPLICANT: Jones, Robert M.
; APPLICANT: Nielsen, Jake
; APPLICANT: University of Utah Research Foundation
; TITLE OF INVENTION: Alpha Conotoxin Peptides
; FILE REFERENCE: Alpha CIP
; CURRENT APPLICATION NUMBER: US 09/908,741
; PRIOR FILING DATE: 2001-07-20
; PRIOR APPLICATION NUMBER: US 60/116,881
; PRIOR FILING DATE: 1999-01-22
; PRIOR APPLICATION NUMBER: US 09/488,799
; PRIOR FILING DATE: 2000-01-21
; PRIOR APPLICATION NUMBER: US 60/219,407
; PRIOR FILING DATE: 2000-07-28
; PRIOR APPLICATION NUMBER: US 60/221,557
; NUMBER OF SEQ ID NOS: 125
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 61
; LENGTH: 61
; TYPE: PRT
; ORGANISM: Conus circumcinctus
US-09-908-741-61
Query Match 64.8%; Score 83; DB 10; Length 61;
Best Local Similarity 80.0%; Pred. No. 0.027;
Matches 12; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 GCCNPACGPNYGGC 15
|:|:|:|:|:|:|
Db 46 GRCCHPACGPNYSCG 60
|:|:|:|:|:|:|

RESULT 10
US-09-908-741-83
; Sequence 83, Application US/09908741
; Publication No. US20030050435A1
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Layer, Richard T.
; APPLICANT: Watkins, Maren
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Schoenfeld, Robert
; APPLICANT: Jones, Robert M.
; APPLICANT: Nielsen, Jake
; APPLICANT: University of Utah Research Foundation
; TITLE OF INVENTION: Alpha Conotoxin Peptides
; FILE REFERENCE: Alpha CIP
; CURRENT APPLICATION NUMBER: US 09/908,741
; PRIOR FILING DATE: 2001-07-20
; PRIOR APPLICATION NUMBER: US 60/116,881
; PRIOR FILING DATE: 1999-01-22
; PRIOR APPLICATION NUMBER: US 09/488,799
; PRIOR FILING DATE: 2000-01-21
; PRIOR APPLICATION NUMBER: US 60/219,407
; PRIOR FILING DATE: 2000-07-28
; PRIOR APPLICATION NUMBER: US 60/221,557
; NUMBER OF SEQ ID NOS: 125
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 83
; LENGTH: 19
; TYPE: PRT
; ORGANISM: Conus obscurus
US-09-908-741-83
Query Match 61.7%; Score 79; DB 10; Length 19;
Best Local Similarity 84.6%; Pred. No. 0.03;
Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 3 CCNPACGPNYGGC 15
|||||
Db 6 CCNPACGPNYSCG 18
|||||

RESULT 11
US-09-908-741-31
; Sequence 31, Application US/09908741
; Publication No. US20030050435A1
; GENERAL INFORMATION:
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Layer, Richard T.
; APPLICANT: Watkins, Maren
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Schoenfeld, Robert
; APPLICANT: Jones, Robert M.
; APPLICANT: Nielsen, Jake
; APPLICANT: University of Utah Research Foundation
; TITLE OF INVENTION: Alpha Conotoxin Peptides
; FILE REFERENCE: Alpha CIP
; CURRENT APPLICATION NUMBER: US 09/908,741
; PRIOR FILING DATE: 2001-07-20
; PRIOR APPLICATION NUMBER: US 60/116,881
; PRIOR FILING DATE: 1999-01-22
; PRIOR APPLICATION NUMBER: US 60/116,882
; PRIOR FILING DATE: 1999-01-22
; PRIOR APPLICATION NUMBER: US 09/488,799
; PRIOR FILING DATE: 2000-01-21
; PRIOR APPLICATION NUMBER: US 60/219,407
; PRIOR FILING DATE: 2000-07-28
; PRIOR APPLICATION NUMBER: US 60/221,557
; NUMBER OF SEQ ID NOS: 125
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 61
; LENGTH: 61
; TYPE: PRT
; ORGANISM: Conus circumcinctus
US-09-908-741-61
Query Match 64.8%; Score 83; DB 10; Length 61;
Best Local Similarity 80.0%; Pred. No. 0.027;
Matches 12; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 GCCNPACGPNYGGC 15
|:|:|:|:|:|:|
Db 46 GRCCHPACGPNYSCG 60
|:|:~|:~|:~|:~|:~|
```



; TYPE: PRT  
; ORGANISM: Conus magus  
US-09-908-741-75

Query Match 58.6%; Score 75; DB 10; Length 59;  
Best Local Similarity 73.3%; Pred. No. 0.2;  
Matches 11; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 GCCCPACGPNYCG 15  
Db 44 GRCCHPACGQNYSCG 58

## RESULT 15

US-10-833-951-28  
; Sequence 28, Application US/10833951  
; Publication No. US20050053970A1  
; GENERAL INFORMATION:  
; APPLICANT: BENSON, JOHN D.  
; APPLICANT: VINCENT, SYLVIE M.  
; APPLICANT: BRASHER, BRADLEY B.  
; APPLICANT: MIAO, ZHENWEI  
; APPLICANT: LAMMIN, DUDLEY  
; TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR IDENTIFYING PEPTIDE APATAMERS CAPABLE  
; FILE REFERENCE: 4014.1037 US2  
; CURRENT APPLICATION NUMBER: US/10/833,951  
; CURRENT FILING DATE: 2004-04-28  
; PRIOR APPLICATION NUMBER: PCT/US02/35584  
; PRIOR FILING DATE: 2002-11-06  
; PRIOR APPLICATION NUMBER: 60/357,278  
; PRIOR FILING DATE: 2002-02-14  
; PRIOR APPLICATION NUMBER: 60/333,262  
; PRIOR FILING DATE: 2001-11-06  
; NUMBER OF SEQ ID NOS: 346  
; SOFTWARE: PatentIn version 3.2  
; SEQ ID NO 28  
; LENGTH: 15  
; TYPE: PRT  
; ORGANISM: Artificial Sequence  
; FEATURE:  
; OTHER INFORMATION: Description of Artificial Sequence: Synthetic construct  
US-10-833-951-28

Query Match 56.2%; Score 72; DB 17; Length 15;  
Best Local Similarity 71.4%; Pred. No. 0.15;  
Matches 10; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 3 CCNPACGPNYCGT 16  
Db 1 CCNPACGRHYSCGS 14

Search completed: March 23, 2005, 00:35:06  
Job time : 44.4015 secs



C;Superfamily: alpha-conotoxin  
C;Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neurotoxin  
F;2-7,3-13/Disulfide bonds: #status experimental  
F;13/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 57.0%; Score 73; DB 2; Length 13;  
 Best Local Similarity 83.3%; Pred. No. 0.019;  
 Matches 10; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 3 CCNPACGPNYGC 14  
 |||||  
 Db 2 CCNPACGPKYSC 13  
 |||||

RESULT 3  
 NTKNAG  
 A:alpha-conotoxin GIA [validated] - cone shell (Conus geographus)  
 N:Alternate names: alpha-CTX-GIA  
 N:Contains: alpha-conotoxin GI  
 C:Species: Conus geographus (geography cone)  
 C>Date: 24-Sep-1981 #sequence\_revision 24-Sep-1981 #text\_change 09-Jul-2004  
 C:Accession: A01782  
 R:Gray, W.R.; Luque, A.; Olivera, B.M.; Barrett, J.; Cruz, L.J.  
 J. Biol. Chem. 256, 4734-4740, 1981  
 A:Title: Peptide toxins from Conus geographus venom.  
 A:Reference number: A92320; MUID:81191854; PMID:7014556  
 A:Accession: A01782  
 A:Molecule type: protein  
 A:Residues: 1-15 <GRA>  
 A:Cross-references: UNIPROT:P01519  
 R:Gray, W.R.; Rivier, J.E.; Galyean, R.; Cruz, L.J.; Olivera, B.M.  
 J. Biol. Chem. 258, 12247-12251, 1983  
 A:Title: Conotoxin MI. Disulfide bonding and conformational states.  
 A:Reference number: A92396; MUID:84032400; PMID:6630187  
 A:Contents: annotation; disulfide bonds  
 R:Guddat, L.W.; Shan, L.; Martin, J.L.; Edmundson, A.B.; Gray, W.R.  
 submitted to the Brookhaven Protein Data Bank, May 1996  
 A:Reference number: A6253; PDB:1NOT  
 A:Contents: annotation; X-ray crystallography, 1.2 angstroms, residues 1-13  
 R:Guddat, L.W.; Martin, J.A.; Shan, L.; Edmundson, A.B.; Gray, W.R.  
 Biochemistry 35, 11329-11335, 1996  
 A:Title: Three-dimensional structure of the alpha-conotoxin GI at 1.2 angstroms resolution  
 A:Reference number: A58592; MUID:96378624; PMID:8784187  
 A:Contents: annotation; X-ray crystallography, 1.2 angstroms  
 R:Pardi, A.; Galdes, A.; Florance, J.; Manicote, D.  
 Biochemistry 28, 5494-5501, 1989  
 A:Title: Solution structures of alpha-conotoxin GI determined by two-dimensional NMR spectroscopy  
 A:Reference number: A30629; MUID:89375269; PMID:2775719  
 A:Contents: annotation; conformation by (1)H-NMR  
 C:Comment: This alpha-conotoxin, as an acetylcholine receptor inhibitor, is a postsynaptic superfamily: alpha-conotoxin  
 C:Superfamily: alpha-conotoxin  
 C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; blocked carboxyl end  
 F:1-15/Product: conotoxin GIA #status experimental <GIA>  
 F:1-13/Product: conotoxin GI #status experimental <GIC>  
 F:2-7,3-13/Disulfide bonds: #link GIA #status predicted  
 F:2-7,3-13/Disulfide bonds: #link GIC #status experimental  
 F:13/Modified site: amidated carboxyl end (Cys) (amide in mature form from following glycosylation)  
 F:15/Modified site: blocked carboxyl end (Lys) (probably amidated) #status experimental

Query Match 55.5%; Score 71; DB 1; Length 15;  
 Best Local Similarity 76.9%; Pred. No. 0.036;  
 Matches 10; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 3 CCNPACGPNYGC 15  
 |||||  
 Db 2 CCNPACGRHYSC 14  
 |||||

RESULT 4  
 NTKNIM  
 A:alpha-conotoxin MI - cone shell (Conus magus)  
 C:Species: Conus magus (magus cone)  
 C>Date: 18-Apr-1984 #sequence\_revision 18-Apr-1984 #text\_change 09-Jul-2004  
 C:Accession: A01784  
 R:McIntosh, M.; Cruz, L.J.; Hunkapiller, M.W.; Gray, W.R.; Olivera, B.M.  
 Arch. Biochem. Biophys. 218, 329-334, 1982  
 A:Title: Isolation and structure of a peptide toxin from the marine snail Conus magus.  
 A:Reference number: A90071; MUID:83073458; PMID:7149738

A:Accession: A01784  
 A:Molecule type: protein  
 A:Residues: 1-14 <MCI>  
 A:Cross-references: UNIPROT:P01521  
 R:Gray, W.R.; Rivier, J.E.; Galyean, R.; Cruz, L.J.; Olivera, B.M.  
 J. Biol. Chem. 258, 12247-12251, 1983  
 A:Title: Conotoxin MI. Disulfide bonding and conformational states.  
 A:Reference number: A92396; MUID:84032400; PMID:6630187  
 A:Contents: annotation; disulfide bonds  
 C:Comment: This alpha-conotoxin, as an acetylcholine receptor inhibitor, is a postsynaptic superfamily: alpha-conotoxin  
 C:Superfamily: alpha-conotoxin  
 C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neurotoxin  
 F:3-8,4-14/Disulfide bonds: #status experimental  
 F:14/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 53.9%; Score 69; DB 1; Length 14;  
 Best Local Similarity 71.4%; Pred. No. 0.058;  
 Matches 10; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 GCCNPACGPNYGC 14  
 |||||  
 Db 1 GRCHPACGKNYSC 14  
 |||||

RESULT 5  
 S25772  
 A:Species: Drosophila melanogaster  
 C:Date: 26-Jul-1996 #sequence\_revision 26-Jul-1996 #text\_change 09-Jul-2004  
 C:Accession: S25772; A56565  
 R:Kuhn, R.; Kuhn, C.; Boersch, D.; Glaetzer, K.H.; Schaefer, U.; Schaefer, M.  
 Mech. Dev. 35, 143-151, 1991  
 A:Title: A cluster of four genes selectively expressed in the male germ line of Drosophila  
 A:Reference number: A56565; MUID:92102953; PMID:1684716  
 A:Accession: S25772  
 A:Molecule type: DNA  
 A:Residues: 1-63 <KUH>  
 A:Cross-references: UNIPROT:Q001642; EMBL:X67703; NID:g11072; PIDN:CAA47937.1; PID:g11073  
 A:Note: sequence extracted from NCBI backbone (NCBIN:74219, NCBIP:74224)  
 C:Genetics:  
 A:Gene: Mst84Da  
 A:Cross-references: FlyBase:FBgn0004172  
 A:Map position: 3  
 A:Introns: 13/3  
 C:Superfamily: fruit fly testis-specific protein  
 C:Keywords: spermatogenesis; tandem repeat

Query Match 52.3%; Score 67; DB 2; Length 63;  
 Best Local Similarity 57.9%; Pred. No. 0.27;  
 Matches 11; Conservative 0; Mismatches 6; Indels 2; Gaps 1;

QY 2 CC-CNPACGPNYGGTSC 18  
 |||||  
 Db 32 CCGGCGCCGCGGCGGCC 50  
 |||||

RESULT 6  
 WIFF  
 A:Species: Drosophila melanogaster  
 C:Date: 30-Sep-1990 #sequence\_revision 30-Sep-1990 #text\_change 09-Jul-2004  
 C:Accession: S00340  
 R:Kuhn, R.; Schaefer, U.; Schaefer, M.  
 EMBO J. 7, 447-454, 1988  
 A:Title: Cis-acting regions sufficient for spermatocyte-specific transcriptional and spermatogenesis  
 A:Reference number: S00340; MUID:88211557; PMID:2835228  
 A:Accession: S00340  
 A:Molecule type: DNA  
 A:Residues: 1-56 <KUH>  
 A:Cross-references: UNIPROT:P08175; EMBL:Y00831; NID:g8650; PIDN:CAA68761.1; PID:g8651  
 C:Genetics:  
 A:Gene: FlyBase:Mst87F  
 A:Cross-references: FlyBase:FBgn0002862

C:Superfamily: fruit fly testis-specific protein  
C:Keywords: sex-specific protein; testis

Query Match 50.0%; Score 64; DB 1; Length 56;  
Best Local Similarity 55.6%; Pred. No. 0.54;  
Matches 10; Conservative 0; Mismatches 8; Indels 0; Gaps 0;

QY 1 GCCCNACGPNVCGCTSC 18  
DB 11 GPCCGCCGCGPCGCGGC 28

## RESULT 7

A36686 ultra-high-sulfur keratin - sheep

C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)

C:Date: 12-Apr-1991 #sequence\_revision 12-Apr-1991 #text\_change 09-Jul-2004

A:Accession: A36686

R:MacKinnon, P.J.; Powell, B.C.; Rogers, G.E.

J. Cell Biol. 111, 2587-2600, 1990

A:Title: Structure and expression of genes for a class of cysteine-rich proteins of the

A:Reference number: A36686; MUID:91115951; PMID:1703541

A:Accession: A36686

A>Status: preliminary

A:Molecule type: DNA

A:Residues: 1-182 <MAC>

A:Cross-references: UNIPROT:P26372; GB:X55294; NID:g1305; PIDN:CAA39006.1; PID:g1306

C:Superfamily: ultra-high-sulfur keratin

Query Match 49.2%; Score 63; DB 2; Length 182;

Best Local Similarity 52.4%; Pred. No. 1.6;

Matches 11; Conservative 0; Mismatches 4; Indels 4; Gaps 1;

QY 2 CCNCPACGPNY----GCGTSC 18  
DB 39 CCNCPACGPNY----GCGTSC 59

## RESULT 8

S25775

C:Species: Drosophila melanogaster - fruit fly (Drosophila melanogaster)

C:Date: 26-Jul-1996 #sequence\_revision 26-Jul-1996 #text\_change 09-Jul-2004

A:Accession: S25775; D56565

R:Kuhn, R.; Kuhn, C.; Boerscher, D.; Glaetzer, K.H.; Schaefer, U.; Schaefer, M.

Mech. Dev. 35, 143-151, 1991

A:Title: A cluster of four genes selectively expressed in the male germ line of Drosophila

A:Reference number: A56565; MUID:92102953; PMID:1684716

A:Accession: S25775

A:Molecule type: DNA

A:Residues: 1-68 <KUH>

A:Cross-references: UNIPROT:Q01645; EMBL:X67703; NID:g11072; PIDN:CAA47940.1; PID:g11076

A:Note: sequence extracted from NCBI backbone (NCBIN:74217, NCBI:P:74223)

C:Genetics:

A:Gene: Mat84D

A:Cross-references: FlyBase:FBgn0004175

A:Map position: 3

C:Superfamily: fruit fly testis-specific protein

C:Keywords: spermatogenesis; tandem repeat

Query Match 48.8%; Score 62.5; DB 2; Length 68;

Best Local Similarity 57.9%; Pred. No. 0.92;

Matches 11; Conservative 0; Mismatches 7; Indels 1; Gaps 1;

QY 1 GCCCNACGPNVCGCTSC 18  
DB 18 GPCCGCCGCGPCGCGGC 36

## RESULT 9

N7KNAS

C:Species: Conus striatus (Conus striatus)

C:Superfamily: ultra-high-sulfur keratin

C:Date: 30-Sep-1992 #sequence\_revision 30-Sep-1992 #text\_change 09-Jul-2004

A:Accession: A40312

R:Myers, R.A.; Zafaralla, G.C.; Gray, W.R.; Abbott, J.; Cruz, L.J.; Olivera, B.M.

Biochemistry 30, 9370-9377, 1991

A:Title: alpha-Conotoxins, small peptide probes of nicotinic acetylcholine receptors.

A:Reference number: A40312; MUID:91369955; PMID:1892838

A:Accession: A40312

A:Molecule type: protein

A:Residues: 1-13 <MYE>

A:Cross-references: UNIPROT:P28878

C:Comment: This paralytic toxin from a fish-hunting cone snail inhibits the acetylcholine

C:Superfamily: alpha-conotoxin

C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neuroto

F:2-7,3-13/disulfide bonds: #status experimental

F:13/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 47.7%; Score 61; DB 1; Length 13;

Best Local Similarity 66.7%; Pred. No. 0.44;

Matches 8; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 3 CCNCPACGPNYGC 14  
DB 2 CCHPACGKNFDC 13

## RESULT 10

A58963

N:Contains: alpha-conotoxin Cn1A - cone shell (Conus consors)

C:Species: Conus consors

C:Date: 16-Jul-1999 #sequence\_revision 16-Jul-1999 #text\_change 09-Jul-2004

A:Accession: A58963

R:Favreau, P.; Krimm, I.; Le Gall, F.; Bobenrieth, M.J.; Lamthanh, H.; Bouet, F.; Servent

Biochemistry 38, 6317-6326, 1999

A:Title: Biochemical characterization and nuclear magnetic resonance structure of novel

A:Reference number: A58963; MUID:99255390; PMID:10320362

A:Accession: A58963

A>Status: preliminary

A:Molecule type: protein

A:Residues: 1-14 <PAV>

A:Cross-references: UNIPROT:P56973

C:Superfamily: alpha-conotoxin

C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neuroto

F:1-14/Product: alpha-conotoxin Cn1A #status experimental <NATA>

F:3-14/Product: alpha-conotoxin Cn1B #status experimental <MATE>

F:3-8,4-14/disulfide bonds: #status experimental

F:14/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 47.7%; Score 61; DB 2; Length 14;

Best Local Similarity 64.3%; Pred. No. 0.47;

Matches 9; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 GCCCNACGPNYGC 14  
DB 1 GRCHPACGKYSC 14

## RESULT 11

A38346

ultra-high-sulfur keratin 1 - mouse

C:Species: Mus musculus (house mouse)

C:Date: 28-Jun-1991 #sequence\_revision 28-Jun-1991 #text\_change 09-Jul-2004

A:Accession: A38346

R:Wood, L.; Mills, M.; Hatzenbuehler, N.; Vogeli, G.

J. Biol. Chem. 265, 21375-21380, 1990

A:Title: Serine-rich ultra high sulfur protein gene expression in murine hair and skin d

A:Reference number: A38346; MUID:91065960; PMID:2250030

A:Accession: A38346

A>Status: preliminary

A:Molecule type: DNA

A:Residues: 1-230 <WOO>

A:Cross-references: UNIPROT:Q64507; GB:M37759; NID:g200961; PIDN:AAA40106.1; PID:g200962

C:Superfamily: ultra-high-sulfur keratin

Query Match 46.9%; Score 60; DB 2; Length 230;  
Best Local Similarity 52.6%; Pred. No. 4;  
Matches 10; Conservative 2; Mismatches 5; Indels 2; Gaps 1;

QY 2 CCNPACGPNY--GGGTSC 18  
||| | : ||| :  
DB 53 CCVPCVSCSGCGGSSC 71

## RESULT 12

JC6547  
high sulfur protein B2E - rat  
C:Species: Rattus norvegicus (Norway rat)  
C:Date: 05-Dec-1998 #sequence\_revision 05-Dec-1998 #text\_change 09-Jul-2004  
C:Accession: JC6547  
R:Mitsei, S.; Ohuchi, A.; Adachi-Yamada, T.; Hotta, M.; Tsuboi, R.; Ogawa, H.  
Gene 208, 123-129, 1998  
A:Title: Structure and hair follicle-specific expression of genes encoding the rat high sulfur protein B2E  
A:Reference number: JC6547; MUID:98201605; PMID:9524245  
A:Accession: JC6547  
A:Molecule type: DNA  
A:Residues: 1-188 <MIT>  
A:Cross-references: UNIPROT:070148; DDBJ:AB003753; NID:G3046870; PIDN:BAA25573.1; PID:G3046870  
C:Comment: This protein is a cysteine-rich, keratin associated protein.  
C:Genetics:  
A:Gene: b2E  
C:Superfamily: keratin high-sulfur matrix protein IIIA  
C:Keywords: hair

Query Match 46.1%; Score 59; DB 2; Length 188;  
Best Local Similarity 56.2%; Pred. No. 4.5;  
Matches 9; Conservative 0; Mismatches 7; Indels 7; Gaps 0;

QY 3 CCNPACGPNYGGTSC 18  
||| | : ||| :  
DB 84 CCQPTCCQSSSQTSC 99

## RESULT 13

I46412  
keratin KAP5.4 - sheep  
C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
C:Date: 16-Aug-1996 #sequence\_revision 16-Aug-1996 #text\_change 09-Jul-2004  
C:Accession: I46412; S34215  
R:Jenkins, B.J.; Powell, B.C.  
J. Invest. Dermatol. 103, 310-317, 1994  
A:Title: Differential expression of genes encoding a cysteine-rich keratin family in the epidermis of sheep  
A:Reference number: I46412; MUID:94358466; PMID:7521375  
A:Accession: I46412  
A>Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-191 <JENS>  
A:Cross-references: UNIPROT:Q28583; EMBL:X73434; NID:G313719; PIDN:CAA51829.1; PID:G313719  
C:Genetics:  
A:Gene: KRTAP5.4  
C:Superfamily: ultra-high-sulfur keratin

Query Match 46.1%; Score 59; DB 2; Length 191;  
Best Local Similarity 47.6%; Pred. No. 4.6;  
Matches 10; Conservative 2; Mismatches 5; Indels 4; Gaps 1;

QY 2 CCNPACGPNY----GGGTSC 18  
||| | : ||| :  
DB 89 CCVPCVSCSGCGGSSC 109

## RESULT 14

S18946  
ultra high-sulfur keratin 1 - human  
N:Alternate names: UHS keratin; ultra high-sulfur matrix protein  
C:Species: Homo sapiens (man)  
C:Date: 22-Oct-1999 #sequence\_revision 22-Oct-1999 #text\_change 09-Jul-2004

C:Accession: S18946; B36686  
R:Drabant, B.; Doenecke, D.  
submitted to the EMBL Data Library, December 1991  
A:Description: Nucleotide sequence of a human high-sulphur keratin cDNA.  
A:Reference number: S18946  
A:Accession: S18946  
A:Molecule type: mRNA  
A:Residues: 1-169 <DRA>  
A:Cross-references: UNIPROT:Q14564; EMBL:X63755; NID:G32471; PIDN:CAA45283.1; PID:G32472  
R:Mackimmon, P.J.; Sewell, B.C.; Rogers, G.E.  
J. Cell Biol. 111, 2587-2600, 1990  
A:Title: Structure and expression of genes for a class of cysteine-rich proteins of the epidermis  
A:Reference number: A36686; MUID:91115951; PMID:1703541  
A:Accession: B36686  
A:Molecule type: DNA  
A:Residues: 1-39, Y', 41-169 <MAC>  
A:Cross-references: GB:X55293; NID:G34078; PIDN:CAA39005.1; PID:G34079  
C:Genetics:  
A:Gene: GDB:KRW1  
A:Cross-references: GDB:125257; OMIM:148021  
A:Map position: 11q13-11q13  
C:Superfamily: ultra-high-sulfur keratin  
C:Keywords: hair; tandem repeat  
F:7-15/Region: Ser-rich nonapeptide repeat  
F:59-68/Region: Gly-rich decapeptide repeat  
F:69-78/Region: Gly-rich decapeptide repeat  
F:79-88/Region: Cys-rich decapeptide repeat  
F:89-97/Region: Ser-rich nonapeptide repeat  
F:108-117/Region: Cys-rich decapeptide repeat  
F:118-126/Region: Ser-rich nonapeptide repeat  
F:127-136/Region: Cys-rich decapeptide repeat  
F:137-145/Region: Ser-rich nonapeptide repeat  
F:146-155/Region: Cys-rich decapeptide repeat  
F:156-165/Region: Cys-rich decapeptide repeat

Query Match 45.7%; Score 58.5; DB 1; Length 169;  
Best Local Similarity 50.0%; Pred. No. 4.8;  
Matches 11; Conservative 2; Mismatches 4; Indels 5; Gaps 2;

QY 1 GC---CCNPACGPNYGGTSC 18  
||| | : ||| :  
DB 76 GCQCSCCKPCCSS-GCGSSC 96

## RESULT 15

S57860  
metallothionein 1c - Arabidopsis thaliana  
C:Species: Arabidopsis thaliana (mouse-ear cress)  
C:Date: 27-Oct-1995 #sequence\_revision 03-Nov-1995 #text\_change 09-Jul-2004  
C:Accession: S57860  
R:Zhou, J.; Goldbrough, P.B.  
Mol. Gen. Genet. 248, 318-328, 1995  
A:Title: Structure, organization and expression of the metallothionein gene family in Arabidopsis thaliana  
A:Reference number: S57858; MUID:96004699; PMID:7565594  
A:Accession: S57860  
A:Molecule type: DNA  
A:Residues: 1-45 <ZHO>  
A:Cross-references: UNIPROT:Q38804; EMBL:U11255; NID:G1086460; PIDN:AAA82211.1; PID:G1086460  
C:Genetics:  
A:Gene: MT1c  
A:Map position: 1  
A:Introns: 19/2  
C:Superfamily: metallothionein  
C:Keywords: metal binding

Query Match 45.3%; Score 58; DB 2; Length 45;  
Best Local Similarity 52.9%; Pred. No. 2.2;  
Matches 9; Conservative 3; Mismatches 5; Indels 0; Gaps 0;

QY 3 CCNPACGPNYGGTSC 19  
||| | : ||| :  
DB 28 CDNCSCGSCGSSCN 44

Search completed: March 22, 2005, 22:54:25  
Job time : 11.6601 secs



GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:45:36 ; Search time 50.7294 Seconds  
(without alignments)  
191.792 Million cell updates/sec

Title: US-09-787-082A-23  
Perfect score: 128  
Sequence: 1 GCCCNACGPNYCGTSCS 19

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : UniProt 03.\*  
1: uniprot\_sprot.\*  
2: uniprot\_trembl.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match %	Length	DB	ID	Description
1	128	100.0	72	1	CXA2 CONST	P28879 conus stria
2	79	61.7	64	1	CXA1 CONST	P15471 conus stria
3	71	55.5	15	1	CXAA CONGE	P01519 conus geogr
4	69	53.9	14	1	CXA1 CONMA	P01521 conus magnu
5	67	52.3	63	1	M84A_DROME	Q01642 drosophila
6	65	50.8	167	2	Q9D122	Q9d122 mus musculu
7	64	50.0	28	2	Q41982	Q41982 arabidopsis
8	64	50.0	56	1	M87F_DROME	P08175 drosophila
9	64	50.0	168	2	Q9D732	Q9d732 mus musculu
10	63	49.2	118	2	Q8WT16	Q8wt16 drosophila
11	63	49.2	147	2	Q6MCJ7	Q6mcj7 parachlamyd
12	63	49.2	182	1	KRUC_SHEEP	P26372 ovis aries
13	62.5	48.8	68	1	M84D_DROME	Q01645 drosophila
14	62.5	48.8	72	2	Q9VI99	Q9vi99 drosophila
15	62	48.4	55	2	Q6QAU0	Q6qau0 drosophila
16	62	48.4	52	2	Q6QAT9	Q6gat9 drosophila
17	62	48.4	55	2	Q6QAU1	Q6qau1 drosophila
18	62	48.4	58	2	Q6QAT8	Q6gat8 drosophila
19	62	48.4	109	2	Q9D227	Q9d227 mus musculu
20	61	47.7	13	1	CXAA CONST	P28878 conus stria
21	61	47.7	14	1	CXA1 CONCN	P56973 conus conso
22	61	47.7	61	2	Q87403	Q8t403 drosophila
23	60	46.9	230	2	Q64507	Q64507 mus musculu
24	59.5	46.5	288	2	Q6L8H1	Q6l8h1 homo sapien
25	59	46.1	188	2	Q70148	Q70148 rattus norv
26	59	46.1	191	2	Q28583	Q28583 ovis aries
27	59	46.1	238	2	Q6PL44	Q6pl44 homo sapien
28	59	46.1	1968	2	Q8X0C5	Q8x0c5 neurospora
29	58.5	45.7	136	2	Q9LPI1	Q9lpi1 arabidopsis
30	58.5	45.7	169	1	KRUA HUMAN	P26371 homo sapien
31	58.5	45.7	169	2	Q14564	Q14564 homo sapien

32	58.5	45.7	177	2	Q701N4	Q701n4 homo sapien
33	58.5	45.7	187	2	Q6UTX6	Q6utx6 homo sapien
34	58.5	45.7	221	2	Q701N2	Q701n2 homo sapien
35	58	45.3	45	1	MTIC ARATH	Q38804 arabidopsis
36	58	45.3	49	2	Q23947	Q23947 drosophila
37	58	45.3	49	2	Q23948	Q23948 drosophila
38	58	45.3	78	2	Q94G67	Q94g67 amaranthus
39	58	45.3	131	2	Q96S67	Q96s67 homo sapien
40	58	45.3	141	2	Q8IUG0	Q8iug0 homo sapien
41	58	45.3	167	2	Q9BYS2	Q9bys2 homo sapien
42	58	45.3	175	2	Q07628	Q07628 homo sapien
43	58	45.3	177	2	Q07627	Q07627 homo sapien
44	58	45.3	177	2	Q8IUG1	Q8iug1 homo sapien
45	58	45.3	281	2	Q7UNK9	Q7unk9 rhodopirell

## ALIGNMENTS

RESULT 1  
CXAX2\_CONST  
ID CXAX2\_CONST STANDARD; PRT; 72 AA.  
AC P28879; Q8I6R6;  
DT 01-DEC-1992 (Rel. 24, Created)  
DT 28-FEB-2003 (Rel. 41, Last sequence update)  
DT 25-OCT-2004 (Rel. 45, Last annotation update)  
DE Alpha-conotoxin S11 precursor (S2).  
OS Conus striatus (Striated cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=6493;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE=Venom duct;  
RX MEDLINE=20037955; PubMed=10573284; DOI=10.1016/S0196-9781(99)00116-3;  
RA Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-P.;  
RT "Conopeptides from Conus striatus and Conus textile by cDNA cloning.";  
RL Peptides 20:1139-1144(1999).  
RN [2]  
RP SEQUENCE FROM N.A.  
RX PubMed=14602116; DOI=10.1016/j.toxicon.2003.08.005;  
RA Wang C.-Z., Jiang H., Ou Z.-L., Chen J.-S., Chi C.-W.;  
RT "cDNA cloning of two A-superfamily conotoxins from Conus striatus.";  
RL Toxicon 42:613-619(2003).  
RN [3]  
RP SEQUENCE OF 51-69, AND SYNTHESIS.  
RC TISSUE=Venom;  
RX MEDLINE=93003172; PubMed=1390774;  
RA Ramilo C., Zafaralla G.C., Nadasdi L., Hammerland L.G., Yoshikami D.,  
Gray W.R., Kristipati R., Ramachandran J., Miljanich G., Olivera B.M.,  
Cruz L.J.;  
RT "Novel alpha- and omega-conotoxins from Conus striatus venom.";  
RL Biochemistry 31:9919-9926(1992).  
CC -!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they bind to the nicotinic acetylcholine receptors (nAChR) and thus inhibit them.  
CC -!- SUBCELLULAR LOCATION: Secreted.  
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
CC -!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type family.  
-----  
CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/ or send an email to license@isb-sib.ch).  
-----  
CC EMBL; AY157497; XAN77902.1; --  
DR PIR; A44379; A44379.  
DR InterPro; IPR009958; Toxin\_8.  
DR

DR Pfam; PF07365; Toxin\_8; 1.  
 KW Acetylcholine receptor inhibitor; Direct protein sequencing;  
 FT Neurotoxin; Postsynaptic neurotoxin; Signal; Toxin.  
 FT SIGNAL 1 21 Potential.

FT PROPEP 22 50 Alpha-conotoxin SII.  
 FT PEPTIDE 51 69  
 FT PROPEP 70 72  
 FT DISULFID 52 68 Potential.  
 FT DISULFID 53 58 By similarity.  
 FT DISULFID 54 64 By similarity.  
 FT CONFLICT 23 23 T -> P (in Ref. 2).  
 FT CONFLICT 72 72 L -> I (in Ref. 2).  
 SQ SEQUENCE 72 AA; 7834 MW; 52168A192E8A94CF CRC64;

Query Match 100.0%; Score 128; DB 1; Length 72;  
 Best Local Similarity 100.0%; Pred. No. 1.8e-08;  
 Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCCNACGPNVGGTSCS 19  
 DB 51 GCCCNACGPNVGGTSCS 69

## RESULT 2

CKX1 CONST STANDARD; PRT; 64 AA.

AC P15471;  
 DT 01-APR-1990 (Rel. 14, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Alpha-conotoxin SI precursor (S1).  
 OS Conus striatus (Striated cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=6493;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Venom duct;  
 RX MEDLINE=20037955; PubMed=10573284; DOI=10.1016/S0196-9781(99)00116-3;  
 RA Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-P.;  
 RT "Conopeptides from Conus striatus and Conus textile by cDNA cloning.";  
 RL Peptides 20:1139-1144(1999).  
 RN [2]  
 RP SEQUENCE.

RX MEDLINE=89062448; PubMed=3196703;  
 RA Zafaralla G.C., Ramilo C., Gray W.R., Karlstrom R., Olivera B.M.,  
 RA Cruz L.J.;  
 RT "Phylogenetic specificity of cholinergic ligands: alpha-conotoxin  
 RT SI."  
 RL Biochemistry 27:7102-7105(1988).  
 CC -!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they  
 CC bind to the nicotinic acetylcholine receptors (nAChR) and thus  
 CC inhibit them.  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type  
 CC family.

DR PIR; A28953; A28953.  
 DR InterPro; IPR009958; Toxin\_8.  
 DR Pfam; PF07365; Toxin\_8; 1.  
 KW Acetylcholine receptor inhibitor; Amidation;  
 KW Direct protein sequencing; Neurotoxin; Postsynaptic neurotoxin;  
 KW Signal; Toxin.

FT SIGNAL 1 21 Potential.  
 FT PROPEP 22 49  
 FT PEPTIDE 50 62 Alpha-conotoxin SI.  
 FT DISULFID 51 56  
 FT DISULFID 52 62  
 FT MOD\_RES 62 62  
 FT SEQUENCE 64 AA; 7164 MW; B104B80CCD7C3B41 CRC64;

Query Match 61.7%; Score 79; DB 1; Length 64;  
 Best Local Similarity 84.6%; Pred. No. 0.015;  
 Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 3 CCNPACGPNVCG 15  
 DB 51 CCNPACGPNVCG 63

## RESULT 3

CKXA CONGE

ID CKXA CONGE STANDARD; PRT; 15 AA.

AC P01519;  
 DT 21-JUL-1986 (Rel. 01, Created)  
 DT 21-JUL-1986 (Rel. 01, Last sequence update)  
 DT 25-OCT-2004 (Rel. 45, Last annotation update)  
 DE Alpha-conotoxin GIA [Contains: Alpha-conotoxin GI (GI)].  
 OS Conus geographus (Geography cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=6491;  
 RN [1]  
 RP SEQUENCE.

RX MEDLINE=81191854; PubMed=7014556;  
 RA Gray W.R., Luque F.A., Olivera B.M., Barrett J., Cruz L.J.;  
 RT "Peptide toxins from Conus geographus venom."  
 RL J. Biol. Chem. 256:4734-4740(1981).  
 RN [2]  
 RP DISULFIDE BONDS OF GI, AND SYNTHESIS OF GI.  
 RX MEDLINE=83105694; PubMed=7152021; DOI=10.1016/0014-5793(82)80820-X;  
 RA Nishiuchi Y., Sakakibara S.;  
 RT "Primary and secondary structure of conotoxin GI, a neurotoxic  
 RT tridecapeptide from a marine snail."  
 RL FEBS Lett. 148:260-262(1982).  
 RN [3]  
 RP DISULFIDE BONDS OF GI, AND SYNTHESIS OF GI.  
 RX MEDLINE=84280842; PubMed=6466616;  
 RA Gray W.R., Luque F.A., Galyean R., Achertson E., Sheppard R.C.,  
 RA Stone B.L., Reyes A., Alford J., McIntosh M., Olivera B.M., Cruz L.J.,  
 RA Rivier J.;  
 RT "Conotoxin GI: disulfide bridges, synthesis, and preparation of  
 RT iodinated derivatives."  
 RL Biochemistry 23:2796-2802(1984).  
 RN [4]  
 RP COMPARISON WITH ALPHA-CONOTOXIN SI AND ALPHA-CONOTOXIN MI.  
 RX MEDLINE=95034849; PubMed=7947815;  
 RA Hann R.M., Pagan O.R., Eterovic V.A.;  
 RT "The alpha-conotoxins GI and MI distinguish between the nicotinic  
 RT acetylcholine receptor agonist sites while SI does not."  
 RL Biochemistry 33:14058-14063(1994).  
 RN [5]

RP PHARMACOLOGICAL CHARACTERIZATION ON MOUSE MUSCLE-DERIVED BC3H-1 CELLS  
 RP AND TORPEDO ELECTRIC ORGAN.  
 RX MEDLINE=95349531; PubMed=7623764;  
 RA Groebe D.R., Dunn J.M., Levitan E.S., Abramson S.N.;  
 RT "Alpha-Conotoxins selectively inhibit one of the two acetylcholine  
 RT binding sites of nicotinic receptors."  
 RL Mol. Pharmacol. 48:105-111(1995).  
 RN [6]  
 RP MUTAGENESIS OF ARG-9.  
 RX MEDLINE=97317090; PubMed=9174364; DOI=10.1021/bi970195w;  
 RA Groebe D.R., Gray W.R., Abramson S.N.;  
 RT "Determinants involved in the affinity of alpha-conotoxins GI and SI  
 RT for the muscle subtype of nicotinic acetylcholine receptors."  
 RL Biochemistry 36:6469-6474(1997).  
 RN [7]  
 RP X-RAY CRYSTALLOGRAPHY (1.2 ANGSTROMS) OF GI.  
 RX MEDLINE=96378624; PubMed=8784187; DOI=10.1021/bi960820h;  
 RA Guddat L.W., Martin J.A., Shan L., Edmundson A.B., Gray W.R.;  
 RT "Three-dimensional structure of the alpha-conotoxin GI at 1.2-A  
 RT resolution."  
 RL Biochemistry 35:11329-11335(1996).



[8]  
RP STRUCTURE BY NMR OF GI.  
RX MEDLINE=89352562; PubMed=2765514;  
RA Kobayashi Y., Ohkubo T., Kyogoku Y., Nishiuchi Y., Sakakibara S.,  
RA Braun W., Go N.;  
RT "Solution conformation of conotoxin GI determined by 1H nuclear  
RT magnetic resonance spectroscopy and distance geometry calculations.";  
RL Biochemistry 28:4853-4860(1989).  
RN [9]  
RP STRUCTURE BY NMR OF GI.  
RX MEDLINE=89375269; PubMed=2775719;  
RA Pardi A., Galdes A., Florance J., Manicote D.;  
RT "Solution structures of alpha-conotoxin GI determined by two-  
RT dimensional NMR spectroscopy.";  
RL Biochemistry 28:5494-5501(1989).  
RN [10]  
RP STRUCTURE BY NMR OF GI.  
RX MEDLINE=98321613; PubMed=9660176;  
RA Maletnikov I.V., Sobol A.G., Gladky K.V., Lugovskoy A.A.,  
RA Ostrovsky A.G., Ishtin V.I., Ivanov V.T., Arseniev A.S.;  
RT "Two distinct structures of alpha-conotoxin GI in aqueous solution.";  
RL Eur. J. Biochem. 254:238-247(1998).  
RN [11]  
RP STRUCTURE BY NMR OF GI.  
RX MEDLINE=98239743; PubMed=9571060; DOI=10.1006/jmbi.1998.1701;  
RA Gehrmann J., Alewood P.F., Craik D.J.;  
RT "Structure determination of the three disulfide bond isomers of alpha-  
RT conotoxin GI: a model for the role of disulfide bonds in structural  
RT stability.";  
RL J. Mol. Biol. 278:401-415(1998).  
RN [12]  
RP STRUCTURE BY NMR OF AN ANTITOXIC ANALOG OF GI.  
RX MEDLINE=99438341; PubMed=10508392; DOI=10.1021/bi990558n;  
RA Mok K.H., Han K.H.;  
RT "NMR solution conformation of an antitoxic analogue of alpha-conotoxin  
RT GI: identification of a common nicotinic acetylcholine receptor  
RT alpha(1)-subunit binding surface for small ligands and alpha-  
RT conotoxins.";  
RL Biochemistry 38:11895-11904(1999).  
CC -!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they  
CC bind to the nicotinic acetylcholine receptors (nAChR) and thus  
CC inhibit them. The higher affinity site for alpha-conotoxin GI is  
CC the alpha/delta site on mouse muscle-derived BC3H-1 receptor, and  
CC the other site (alpha/gamma site) on nicotinic receptors from  
CC Torpedo californica electric organ.  
CC -!- SUBCELLULAR LOCATION: Secreted.  
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
CC -!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type family.  
DR PIR; A01782; NTKNAG.  
DR PDB; 1NOT; X-ray; @=1-14.  
DR PDB; 1OS3; NMR; A=2-13.  
DR PDB; 1XGA; NMR; @=1-14.  
DR PDB; 1XGB; NMR; @=1-14.  
DR PDB; 1XGC; NMR; @=1-14.  
KW 3D-structure; Acetylcholine receptor inhibitor; Amidation;  
KW Direct protein sequencing; Neurotoxin; Postsynaptic neurotoxin; Toxin.  
FT PEPTIDE 1 15 Alpha-conotoxin GIA.  
FT PEPTIDE 1 13 Alpha-conotoxin GI.  
FT DISULFID 2 7  
FT DISULFID 3 13  
FT MOD\_RES 13 13  
FT MOD\_RES 15 15  
FT MUTAGEN 9  
FT Cysteine amide (G-14 provides amide group) (in alpha-conotoxin GI).  
FT Lysine amide (in alpha-conotoxin GIA).  
FT R->A: Reduction in affinity for both  
FT alpha/delta and alpha/gamma sites on  
FT BC3H-1 receptors and loss of affinity for  
FT both alpha/delta and alpha/gamma sites on  
FT Torpedo receptors (in GI).  
FT STRAND 2 2  
FT HELIX 5 10  
FT STRAND 12 12  
FT SEQUENCE 15 AA; 1628 MW; 2AE73EE90F8C2E19 CRC64;

Query Match 55.5%; Score 71; DB 1; Length 15;  
Best Local Similarity 76.9%; Pred. No. 0.044;  
Matches 10; Conservative 1; Mismatches 2; Indels 0; Gaps 0;  
QY 3 CCNPACGPNYGC 15  
DB 2 CCNPACGRHYSYGC 14  
RESULT 4  
CXAL CONMA STANDARD; PRT; 14 AA.  
ID CXAL CONMA STANDARD; PRT; 14 AA.  
AC P01521;  
DT 21-JUL-1986 (Rel. 01, Created)  
DT 21-JUL-1986 (Rel. 01, Last sequence update)  
DT 05-JUL-2004 (Rel. 44, Last annotation update)  
DE Alpha-conotoxin MI (M1).  
OS Conus magus (Mussel cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorboconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=6492;  
RN [1] SEQUENCE.  
RP MEDLINE=83073458; PubMed=7149738;  
RX McIntosh J.M., Cruz L.J., Hunkapiller M.W., Gray W.R., Olivera B.M.;  
RA "Isolation and structure of a peptide toxin from the marine snail  
RT Conus magus.";  
RL Arch. Biochem. Biophys. 218:329-334(1982).  
RN [2]  
RP DISULFIDE BONDS.  
RX MEDLINE=84032400; PubMed=6630187;  
RA Gray W.R., Rivier J.E., Galyean R., Cruz L.J., Olivera B.M.;  
RT "Conotoxin MI. Disulfide bonding and conformational states.";  
RL J. Biol. Chem. 258:12247-12251(1983).  
CC -!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they  
CC bind to the nicotinic acetylcholine receptors (nAChR) and thus  
CC inhibit them.  
CC -!- SUBCELLULAR LOCATION: Secreted.  
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
CC -!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type family.  
DR PIR; A01784; NTKNIM.  
DR HSP; P56973; 1B45.  
KW Acetylcholine receptor inhibitor; Amidation;  
KW Direct protein sequencing; Neurotoxin; Postsynaptic neurotoxin; Toxin.  
FT DISULFID 3 8  
FT DISULFID 4 14  
FT MOD\_RES 14 14  
FT MOD\_RES 14 AA; 1499 MW; DEEE91898BF5E5BD CRC64;  
FT Cysteine amide.  
Query Match 53.9%; Score 69; DB 1; Length 14;  
Best Local Similarity 71.4%; Pred. No. 0.073;  
Matches 10; Conservative 1; Mismatches 3; Indels 0; Gaps 0;  
QY 1 GCCNPACGPNYGC 14  
DB 1 GRCHPACGKNYSC 14  
RESULT 5  
M84A DROME STANDARD; PRT; 63 AA.  
ID M84A DROME STANDARD; PRT; 63 AA.  
AC Q01642; Q9VIA3;  
DT 01-JUL-1993 (Rel. 26, Created)  
DT 01-JUL-1993 (Rel. 26, Last sequence update)  
DT 25-JAN-2005 (Rel. 46, Last annotation update)  
DE Male specific sperm protein Mst84Da.  
GN Name=Mst84Da; ORFNames=CG17946;  
OS Drosophila melanogaster (Fruit fly).  
OC Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;  
OC Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;

CC Ephydroidea; Drosophilidae; Drosophila.  
 OX NCBI\_TaxID=7227;  
 RN SEQUENCE FROM N.A.  
 RP STRAIN=Oregon-R;  
 RC MEDLINE=92102953; PubMed=1684716; DOI=10.1016/0925-4773(91)90064-D;  
 RX MEDLINE=92102953; PubMed=1684716; DOI=10.1016/0925-4773(91)90064-D;  
 RA Kuhn R., Kuhn C., Boersch D., Glatzer K.H., Schaefer U., Schaefer M.,  
 RT "A cluster of four genes selectively expressed in the male germ line  
 of *Drosophila melanogaster*.";  
 RL Mech. Dev. 35:143-151(1991).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=Berkley;  
 RX MEDLINE=20196006; PubMed=10731132; DOI=10.1126/science.287.5461.2185;  
 RA Adams M.D., Calniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,  
 RA Manatides P.G., Scher S.E., Li P.W., Hoskins R.A., Galie R.F.,  
 RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,  
 RA Sutton G.G., Wortman J.R., Vandeil M.D., Zhang Q., Chen L.X.,  
 RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,  
 RA Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,  
 RA April J.P., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,  
 RA Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,  
 RA Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,  
 RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,  
 RA Burtis K.C., Busam D.A., Butler H., Cadiou E., Center A., Chandra I.,  
 RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,  
 RA de Pablos B., Deicher A., Deng Z., Mays A.D., Dew I., Dietz S.M.,  
 RA Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,  
 RA Durbin K.J., Evangelista C.C., Ferraz C., Ferreira S., Fleischmann W.,  
 RA Fostler C., Gabrielian A.E., Garg N.S., Gelbart W.M., Glaeser K.,  
 RA Glöck A.A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,  
 RA Harris N.L., Harvey D.A., Heiman T.J., Hernandez J.R., Houck J.,  
 RA Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ibegwam C.,  
 RA Jallali M., Kalush F., Karpen G.H., Ke Z., Kennison J.A., Ketchum K.A.,  
 RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,  
 RA Lasko P., Lei Y., Levitsky A.A., Li J.H., Li Z., Liang Y., Lin X.,  
 RA Liu X., Mattei B., McIntosh T.C., McLeod M.P., McPherson D.,  
 RA Merkulov G., Milehina N.V., Mobarry C., Morris J., Moshrefi A.,  
 RA Mount S.M., Moy M., Murphy B., Murphy L., Muzny D.M., Nelson D.L.,  
 RA Nelson D.R., Nelson K.A., Nixon K., Nusskern D.R., Pacle J.M.,  
 RA Palazzolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,  
 RA Reinert K., Remington K., Saunders R.D.C., Scheeler F., Shen H.,  
 RA Shue B.C., Siden-Kiamos I., Simpson M., Skupski M.P., Smith T.,  
 RA Spier E., Spradling A.C., Stapleton M., Strong R., Sun E.,  
 RA Svirskas R., Tector C., Turner R., Venter E., Wang A.H., Wang X.,  
 RA Wang Z.-Y., Wasserman D.A., Weinstock G.M., Weissbach J.,  
 RA Williams S.M., Woodage T., Worley J.C., Wu D., Yang S., Yao Q.A.,  
 RA Ye J., Yeh R.-F., Zaveri J.S., Zhan M., Zhang G., Zhao Q., Zheng L.,  
 RA Zheng X.H., Zhong P.N., Zhong W., Zhou X., Zhu S., Zhu X., Smith H.O.,  
 RA Gibbs R.A., Myers E.W., Rubin G.M., Venter J.C.;  
 RT "The genome sequence of *Drosophila melanogaster*.";  
 RL Science 287:2185-2195(2000).  
 RN [3]  
 RP GENOME REANNOTATION.  
 RX MEDLINE=22426069; PubMed=12537572;  
 RA Misra S., Crosby M.A., Mungall C.J., Matthews B.B., Campbell K.S.,  
 RA Hradecky P., Huang Y., Kaminker J.S., Milburn G.H., Prochuk S.E.,  
 RA Smith C.D., Tupy J.L., Whitfield E.J., Bayraktaroglu L., Berman B.P.,  
 RA Bettencourt B.R., Celisner S.E., de Grey A.D.N.J., Drysdale R.A.,  
 RA Harris N.L., Richter J., Russo S., Schroeder A.J., Shu S.Q.,  
 RA Stapleton M., Yamada C., Ashburner M., Gelbart W.M., Rubin G.M.,  
 RA Lewis S.E.;  
 RT "Annotation of the *Drosophila melanogaster* euchromatic genome: a  
 systematic review.";  
 RL Genome Biol. 3:RESEARCH0083.1-RESEARCH0083.22(2002).  
 CC -!- TISSUE SPECIFICITY: Testis.  
 CC -!- DEVELOPMENTAL STAGE: Primary spermatocytes.  
 CC -!- DOMAIN: This protein is mostly composed of repetitive C-G-P  
 motifs.  
 CC -!- SIMILARITY: Belongs to the MST(3)CGP family.  
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 CC -----  
 DR EMBL; X67703; CAA47937.1; -;  
 DR PIR; S25772; S25772;  
 DR FlyBase; FBgn0004172; Mat84Da.  
 DR InterPro; IPR005634; MSP.1.  
 DR Pfam; PF03940; MSP.1.  
 KW Multigene family; Repeat; Spermatogenesis.  
 SQ SEQUENCE 63 AA; 5806 MW; BF84CD74CBCEFD3F CRC64;  
 Query Match 52.3%; Score 67; DB 1; Length 63;  
 Best Local Similarity 57.9%; Pred. NO. 0.43;  
 Matches 11; Conservative 0; Mismatches 6; Indels 2; Gaps 1;  
 QY 2 CC--CNPACGPNYGGTSC 18  
 DB 32 CGGGCGCCGCGGCGCC 50  
 ID Q9D122 PRELIMINARY; PRT; 167 AA.  
 AC Q9D122;  
 DT 01-JUN-2001 (TRENBLrel. 17, Created)  
 DT 01-JUN-2001 (TRENBLrel. 17, Last sequence update)  
 DT 01-MAR-2004 (TRENBLrel. 26, Last annotation update)  
 DE Mus musculus 18-day embryo whole body cDNA, RIKEN full-length enriched  
 library, clone:1110033F04 product:weakly similar to KERATIN ASSOCIATED  
 DE PROTEIN 4.12 (SIMILAR TO RIKEN CDNA 1110054F19 GENE).  
 GN Name=1110033F04Rik;  
 OS Mus musculus (Mouse).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
 OX NCBI\_TaxID=10090;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=C57BL/6J; TISSUE=Whole body;  
 RX MEDLINE=99279253; PubMed=10349636; DOI=10.1016/S0076-6879(99)03004-9;  
 RA Carninci P., Hayashizaki Y.;  
 RT "High-efficiency full-length cDNA cloning.";  
 RL Meth. Enzymol. 303:19-44(1999).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=C57BL/6J; TISSUE=Whole body;  
 RX MEDLINE=21085660; PubMed=11217851; DOI=10.1038/35055500;  
 RA RIKEN FANTOM Consortium;  
 RT "Functional annotation of a full-length mouse cDNA collection.";  
 RL Nature 409:685-690(2001).  
 RN [3]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=C57BL/6J; TISSUE=Whole body;  
 RA The FANTOM Consortium;  
 RT "Analysis of the mouse transcriptome based on functional annotation of  
 60,770 full-length cDNAs.";  
 RL Nature 420:563-573(2002).  
 RN [4]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=C57BL/6J; TISSUE=Whole body;  
 RX MEDLINE=20499374; PubMed=11042159; DOI=10.1101/gr.145100;  
 RA Carninci P., Shibata Y., Hayatsu N., Sugahara Y., Shibata K., Itoh M.,  
 RA Konno H., Okazaki Y., Muramatsu M., Hayashizaki Y.;  
 RT "Normalization and subtraction of cap-trapper-selected cDNAs to  
 prepare full-length cDNA libraries for rapid discovery of new genes.";  
 RL Genome Res. 10:1617-1630(2000).  
 RN [5]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=C57BL/6J; TISSUE=Whole body;



RA Gibbs R.A., Myers E.W., Rubin G.M., Venter J.C.;  
 RT "The genome sequence of *Drosophila melanogaster*.";  
 RL Science 287:2185-2195(2000).  
 RN [3]  
 RP GENOME REANNOTATION.  
 RC MEDLINE=22426069; PubMed=12537572;  
 RA Misra S., Crosby M.A., Mungall C.J., Matthews B.B., Campbell K.S.,  
 RA Hradecky P., Huang Y., Kaminker J.S., Millburn G.H., Prochuk S.E.,  
 RA Smith C.D., Tupy J.L., Whifield E.J., Bayraktaroglu L., Berman B.P.,  
 RA Battencourt B.R., Celisner S.E., de Grey A.D.N.J., Drysdale R.A.,  
 RA Harris N.L., Richter J., Russo S., Schroeder A.J., Shu S.O.,  
 RA Stapleton M., Yamada C., Ashburner M., Gelbart W.M., Rubin G.M.,  
 RA Lewis S.E.;  
 RT "Annotation of the *Drosophila melanogaster* euchromatic genome: a  
 RT systematic review.";  
 RL Genome Biol. 3:RESEARCH0083.1-RESEARCH0083.22(2002).  
 CC -!- TISSUE SPECIFICITY: Testis.  
 CC -!- DEVELOPMENTAL STAGE: Primary spermatocytes.  
 CC -!- DOMAIN: This protein is mostly composed of repetitive C-G-P  
 CC motifs.  
 CC -!- SIMILARITY: Belongs to the MST(3)CGP family.  
 CC  
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 CC use by non-profit institutions as long as its content is in no way  
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 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC  
 CC -----  
 DR EMBL; Y00831; CAA68761.1; -;  
 DR EMBL; AE003702; BAF54994.1; -;  
 DR PIR; S00340; WTFP.  
 DR HSP; P01180; 1JKE.  
 DR FlyBase; FBgn002862; Mat87F.  
 KW Multigene family; Repeat; Spermatogenesis.  
 SQ SEQUENCE 56 AA; 5233 MW; 830CD13212C34A47 CRC64;

Query Match 50.0%; Score 64; DB 1; Length 56;  
 Best Local Similarity 55.6%; Pred. No. 0.9;  
 Matches 10; Conservative 0; Mismatches 8; Indels 0; Gaps 0;

QY 1 GCCCPACGPNYGGTSC 18  
 DB 11 GPCCGPGCGPCGCGGC 28

RESULT 9  
 Q9D732 PRELIMINARY; PRT; 168 AA.  
 AC Q9D732;  
 DT 01-JUN-2001 (TrEMBLrel. 17, Created)  
 DT 01-JUN-2001 (TrEMBLrel. 17, Last sequence update)  
 DT 01-MAR-2004 (TrEMBLrel. 26, Last annotation update)  
 DE Mus musculus adult male tongue cDNA, RIKEN full-length enriched  
 DE library, clone:2310037K05 product:similar to KERATIN ASSOCIATED  
 DE PROTEIN 4.15.  
 DE Name=Krtap4-7;  
 OS Mus musculus (Mouse).  
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus.  
 OX NCBI\_TaxID=10090;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=C57BL/6J; TISSUE=Tongue;  
 RX MEDLINE=99279253; PubMed=10349636; DOI=10.1016/S0076-6879(99)03004-9;  
 RA Carninci P., Hayashizaki Y.;  
 RT "High-efficiency full-length cDNA cloning.";  
 RL Meth. Enzymol. 303:19-44(1999).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=C57BL/6J; TISSUE=Tongue;  
 RX MEDLINE=21085660; PubMed=11217851; DOI=10.1038/35055500;

RA RIKEN PANTOM Consortium;  
 RT "Functional annotation of a full-length mouse cDNA collection.";  
 RL Nature 409:685-690(2001).  
 RN [3]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=C57BL/6J; TISSUE=Tongue;  
 RA The FANTOM Consortium,  
 RT "Analysis of the mouse transcriptome based on functional annotation of  
 RT 60,770 full-length cDNAs.";  
 RL Nature 420:563-573(2002).  
 RN [4]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=C57BL/6J; TISSUE=Tongue;  
 RX MEDLINE=20499374; PubMed=11042159; DOI=10.1101/gr.145100;  
 RA Carninci P., Shibata Y., Muramatsu M., Hayashizaki Y.;  
 RA Konno H., Okazaki Y., Muramatsu M., Hayashizaki Y.;  
 RT "Normalization and subtraction of cap-trapper-selected cDNAs to  
 RT prepare full-length cDNA libraries for rapid discovery of new genes.";  
 RL Genome Res. 10:1617-1630(2000).  
 RN [5]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=C57BL/6J; TISSUE=Tongue;  
 RX MEDLINE=20530913; PubMed=11076861; DOI=10.1101/gr.152600;  
 RA Shibata K., Itoh M., Aizawa K., Nagao S., Sasaki N., Carninci P.,  
 RA Konno H., Akiyama J., Nishi K., Kitsuai T., Tashiro H., Itoh M.,  
 RA Sumi N., Ishii Y., Nakamura S., Hazama M., Nishine T., Harada A.,  
 RA Yamamoto R., Matsumoto H., Sakaguchi S., Ikegami T., Kashiwagi K.,  
 RA Fujiwara S., Inoue K., Togawa Y., Izawa M., Ohara E., Watahiki M.,  
 RA Yoneda Y., Ishikawa T., Ogawa K., Tanaka T., Matsuura S., Kawai J.,  
 RA Okazaki Y., Muramatsu M., Inoue Y., Kira A., Hayashizaki Y.;  
 RT "RIKEN integrated sequence analysis (RISA) system-384-format  
 RT sequencing pipeline with 384 multipipillary sequencer.";  
 RL Genome Res. 10:1757-1771(2000).  
 RN [6]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=C57BL/6J; TISSUE=Tongue;  
 RA Adachi J., Aizawa K., Akahira S., Akimura T., Arai A., Aono H.,  
 RA Arakawa T., Bono H., Carninci P., Fukuda S., Fukunishi Y., Furuno M.,  
 RA Hanagaki T., Hara A., Hayatsu N., Hiramoto K., Hiraoka T., Hori F.,  
 RA Imotani K., Ishii Y., Itoh M., Izawa M., Kasukawa T., Kato H.,  
 RA Kawai J., Kojima Y., Konno H., Kouda M., Koya S., Kurihara C.,  
 RA Matsuyama T., Miyazaki A., Nishi K., Nomura K., Numazaki R., Ohno M.,  
 RA Okazaki Y., Okido T., Owa C., Saito H., Saito R., Sakai C., Sakai K.,  
 RA Sano H., Sasaki D., Shibata K., Shibata Y., Shinagawa A., Shiraki T.,  
 RA Sogabe Y., Suzuki H., Tagami M., Tagawa T., Tanaka T., Tanaka T.,  
 RA Tejima Y., Toya T., Yamamura T., Yasunishi A., Yoshida K., Yoshino M.,  
 RA Muramatsu M., Hayashizaki Y.;  
 RT Submitted (JUL-2000) to the EMBL/GenBank/DBJ databases.  
 RL EMBL; AK009665; BAB26426.1; -;  
 DR MGD; MGI:1923694; Krtap4-7.  
 DR GO; GO:0045095; C:keratin filament; IEA.  
 DR InterPro; IPR006209; EGF like.  
 DR InterPro; IPR002494; Keratin\_B2.  
 DR InterPro; IPR001007; VWF C.  
 DR Pfam; PF01500; Keratin\_B2; 1.  
 DR PROSITE; PS00022; EGF1; UNKNOWN 1.  
 DR PROSITE; PS01208; VWF\_1; UNKNOWN 1.  
 KW Keratin.  
 SQ SEQUENCE 168 AA; 17568 MW; A99E4AB35B3D386 CRC64;

Query Match 50.0%; Score 64; DB 2; Length 168;  
 Best Local Similarity 56.2%; Pred. No. 2.2;  
 Matches 9; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

QY 3 CCNPGCGPNYGGTSC 18  
 DB 104 CCQPCGCGSSCGSSC 119

RESULT 10  
 Q8WTI6 PRELIMINARY; PRT; 118 AA.  
 ID Q8WTI6





RA Durbin K.J., Evangelista C.C., Ferraz C., Ferrera S., Fleischmann W.,  
 RA Foster C., Gabrielian A.B., Garg N.S., Gelbart W.M., Glasser K.,  
 RA Glöckle A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,  
 RA Harris N.L., Harvey D., Helman T.J., Hernandez J.R., Houck J.,  
 RA Hostin D., Houston K.A., Howland T.J., Wei M.H., Ibegwam C.,  
 RA Jalali M., Kalush F., Karpen G.H., Ke Z., Kennison J.A., Ketchum K.A.,  
 RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,  
 RA Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,  
 RA Liu X., Maitel B., McIntosh T.C., McLeod M.P., McPherson D.,  
 RA Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,  
 RA Mount S.M., Moy M., Murphy B., Murphy L., Muzny D.M., Nelson D.L.,  
 RA Nelson D.R., Nelson K.A., Nixon K., Nusskern D.R., Pacleb J.M.,  
 RA Palazzolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,  
 RA Reinert K., Remington K., Saunders R.D., Scheeler F., Shen H.,  
 RA Shue B.C., Siden-Kiamos I., Simpson M., Skupski M.P., Smith T.,  
 RA Spier E., Spradling A.C., Stapleton M., Strong R., Sun E.,  
 RA Svirskas R., Tector C., Turner R., Venter E., Wang A.H., Wang X.,  
 RA Wang Z.Y., Wassarman D.A., Weinstein G.M., Weissenbach J.,  
 RA Williams S.M., Woodgett, Worley K.C., Wu D., Yang S., Yao Q.A., Ye J.,  
 RA Yeh R.P., Zaveri J.S., Zhan M., Zhang G., Zhao Q., Zheng L.,  
 RA Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu S., Zhu X., Smith H.O.,  
 RA Gibbs R.A., Myers E.W., Rubin G.M., Venter J.C.;  
 RT "The genome sequence of *Drosophila melanogaster*.";  
 RL Science 287:2185-2195(2000).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=22426065; PubMed=12537568;  
 RA Celniker S.E., Wheeler D.A., Kronmiller B., Carlson J.W., Halpern A.,  
 RA Patel S., Adams M., Champe M., Dugan S.P., Frise E., Hodgson A.,  
 RA George R.A., Hoskins R.A., Laverty T., Muzny D.M., Nelson C.R.,  
 RA Pacleb J.M., Park S., Pfeiffer B.D., Richards S., Sodergren E.J.,  
 RA Svirskas R., Tabor P.E., Wan K., Stapleton M., Sutton G.G., Venter C.,  
 RA Weinstein G., Scherer S.E., Myers E.W., Gibbs R.A., Rubin G.M.;  
 RT "Finishing a whole-genome shotgun: Release 3 of the *Drosophila*  
 RT *melanogaster* euchromatic genome sequence.";  
 RL Genome Biol. 3:RESEARCH0079-RESEARCH0079(2002).  
 RN [3]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=22426070; PubMed=12537573;  
 RA Kaminker J.S., Bergman C.M., Kronmiller B., Carlson J., Svirskas R.,  
 RA Patel S., Frise E., Wheeler D.A., Lewis S.E., Rubin G.M.,  
 RA Ashburner M., Celniker S.E.;  
 RT "The transposable elements of the *Drosophila melanogaster* euchromatin:  
 RT a genomics perspective.";  
 RL Genome Biol. 3:RESEARCH0084-RESEARCH0084(2002).  
 RN [4]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=22426069; PubMed=12537572;  
 RA Misra S., Crosby M.A., Mungall C.J., Matthews B.B., Campbell K.S.,  
 RA Hradecky P., Huang Y., Kaminker J.S., Millburn G.H., Prochnik S.E.,  
 RA Smith C.D., Tupy J.L., Whitfield E.J., Bayraktaroglu L., Berman B.P.,  
 RA Bettencourt B.R., Celniker S.E., de Grey A.D., Drysdale R.A.,  
 RA Harris N.L., Richter J., Russo S., Schroeder A.J., Shu S.O.,  
 RA Stapleton M., Yamada C., Ashburner M., Gelbart W.M., Rubin G.M.,  
 RA Lewis S.E.;  
 RT "Annotation of the *Drosophila melanogaster* euchromatic genome: a  
 RT systematic review.";  
 RL Genome Biol. 3:RESEARCH0083-RESEARCH0083(2002).  
 RN [5]  
 RP SEQUENCE FROM N.A.  
 RG FlyBase;  
 RL Submitted (SEP-2002) to the EMBL/GenBank/DBJ databases.  
 RN [6]  
 RP SEQUENCE FROM N.A.  
 RG FlyBase;  
 RL Submitted (MAR-2004) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF5003672; AAF54026.1; -.  
 DR FlyBase; FBgn0004175; Mst84Dd.  
 DR InterPro; IPR001450; 4Fe4S\_ferredoxin.  
 DR InterPro; IPR005634; MSSP.  
 DR Pfam; PF03940; MSSP; 1.  
 DR PROSITE; PS00198; 4Fe4S\_FERREDOXIN; UNKNOWN\_2.  
 SQ SEQUENCE 72 AA; 6840 MW; 8CE37449B5F8ABA CRC64;

Query Match 48.4%; Score 62.5; DB 2; Length 72;  
 Best Local Similarity 57.9%; Pred. No. 1.7;  
 Matches 11; Conservative 0; Mismatches 7; Indels 1; Gaps 1;  
 QY 1 GCCCNACGPNYGCCTSC 18  
 DB 22 GPCCGPCGCGCGPC 40  
 RESULT 15  
 Q6QAU0 PRELIMINARY; PRT; 52 AA.  
 ID Q6QAU0  
 AC Q6QAU0  
 DT 05-JUL-2004 (TrEMBLrel. 27, Created)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)  
 DE M8T84DC.  
 GN Name=Mst84Dc; ORFNames=CG17945;  
 OS *Drosophila mauritiana* (Fruit fly).  
 OC Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;  
 OC Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;  
 OC Ephydroidea; Drosophilidae; Drosophila.  
 OC NCBI\_TaxID=7226;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=G52;  
 RA Michalak P., Noor M.A.F.;  
 RL Submitted (FEB-2004) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AY549556; AAS55565.1; -.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0006952; P:defense response; IEA.  
 DR GO; GO:0009613; P:response to pest, pathogen or parasite; IEA.  
 DR InterPro; IPR001450; 4Fe4S\_ferredoxin.  
 DR InterPro; IPR006081; Defensin\_alpha.  
 DR InterPro; IPR001007; VWF C.  
 DR PROSITE; PS00198; 4Fe4S\_FERREDOXIN; UNKNOWN\_2.  
 DR PROSITE; PS00269; DEFENSIN; 1.  
 DR PROSITE; PS01208; VWF\_C1; UNKNOWN\_1.  
 SQ SEQUENCE 52 AA; 4908 MW; DE0F3DE43F686E3A CRC64;

Query Match 48.4%; Score 62; DB 2; Length 52;  
 Best Local Similarity 57.9%; Pred. No. 1.5;  
 Matches 11; Conservative 0; Mismatches 4; Indels 4; Gaps 2;

QY 1 GC-CNACGPNYGCCTSC 18  
 DB 11 GCYCCGCGP---CGPC 26

Search completed: March 23, 2005, 00:16:49  
 Job time : 52.7294 secs

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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:44:17 ; Search time 51.7492 Seconds  
(without alignments)  
119.580 Million cell updates/sec

Title: US-09-787-082A-24

Perfect score: 102  
Sequence: 1 GCCSNPBCHLEHNSNLC 16

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%

Listing first 45 summaries

Database : A\_Geneseq\_16Dec04:\*  
1: geneseqp1980s:\*  
2: geneseqp1990s:\*  
3: geneseqp2000s:\*  
4: geneseqp2001s:\*  
5: geneseqp2002s:\*  
6: geneseqp2003as:\*  
7: geneseqp2003bs:\*  
8: geneseqp2004s:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	95	93.1	16	2	AAR75279
2	95	93.1	16	2	AAW24886
3	95	93.1	16	2	AAW24899
4	95	93.1	16	2	AAW12741
5	95	93.1	16	2	AAW12753
6	95	93.1	16	2	AAW57903
7	95	93.1	16	2	AAW24167
8	95	93.1	16	2	AAW09520
9	95	93.1	17	2	AAW24156
10	95	93.1	19	3	AAW84657
11	95	93.1	41	3	AAW21579
12	95	93.1	63	3	AAW21426
13	95	93.1	63	3	AAW21473
14	93	91.2	63	3	AAW21448
15	89	87.3	19	3	AAW84658
16	86	84.3	16	5	AAW09448
17	86	84.3	16	5	ABG99823
18	85	83.3	41	3	AAW21594
19	81	79.4	60	3	AAW21457
20	80	78.4	16	3	AAW21491
21	78	76.5	16	3	AAW21390
22	75	73.5	16	2	AAW24157
23	73	71.6	16	5	ABG99645
24	73	71.6	41	3	AAW21580
25	72	70.6	38	3	AAW21632

26	71	69.6	16	3	AAW21507
27	71	69.6	41	3	AAW21578
28	68	66.7	16	2	AAW09521
29	67	65.7	40	3	AAW21591
30	66	64.7	20	3	AAW21413
31	65	63.7	60	3	AAW21462
32	64	62.7	16	6	ABP60014
33	64	62.7	66	6	ABP60015
34	63	61.8	16	2	AAW75275
35	63	61.8	16	2	AAW24882
36	63	61.8	16	2	AAW12737
37	63	61.8	16	6	ABP60016
38	63	61.8	17	5	ABG99820
39	63	61.8	18	3	AAW21436
40	63	61.8	20	3	AAW21545
41	63	61.8	40	3	AAW21622
42	63	61.8	60	5	ABG99639
43	63	61.8	64	3	AAW21452
44	62	60.8	39	3	AAW21590
45	62	60.8	61	3	AAW21450

## ALIGNMENTS

RESULT 1  
ID AAR75279 standard; peptide; 16 AA.

AC AAR75279;

DT 21-DEC-1995 (first entry)

DE A-lineage conotoxin MC-1 peptide.

KW Conotoxin; neuromuscular; synapse; signal transmission; inhibitor.

OS Conus magus.

XX Key Location/Qualifiers

FT MISC-difference 6 /label= Pro or OTHER

FT /note= "Hydroxyproline"

FT Modified-site 16 /note= "preferably amidated"

PN WO9511256-A1.

XX 27-APR-1995.

PF 19-OCT-1994; 94WO-US011927.

XX 19-OCT-1993; 93US-00137800.

PR (UTAH ) UNIV UTAH RES FOUND.

XX Olivera BM, Cruz LJ, Hillyard DR, McIntosh JM, Santos AD;

XX WPI; 1995-170189/22.

PT New A-lineage conotoxin peptide(s) - which inhibit synaptic transmission at the neuromuscular junction or are active against potassium or sodium channels.

PS Claim 1; Page 43; 66p; English.

XX The kappa-conotoxin, alpha conotoxin and alpha-like conotoxin peptides all belong to a group of peptides known as the A-lineage conotoxin peptides. The A-lineage conotoxin peptides have a wide variety of pharmacological uses. The A-lineage conotoxin peptides claimed (AAR75264-R75293) are useful for the inhibition of synaptic transmission at neuromuscular junctions by blocking nicotinic acetyl choline receptors and they also have activity against voltage-gated Na and K channels

XX Sequence 16 AA;  
SQ

Query Match 93.1%; Score 95; DB 2; Length 16;  
Best Local Similarity 93.8%; Pred. No. 6.4e-05;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPCHLHNSNLC 16  
DB 1 GCCSNPCHLHNSNLC 16

# RESULT 2

AAM24886  
ID AAM24886 standard; peptide; 16 AA.

AC AAM24886;  
XX  
XX 25-MAR-2003 (revised)  
DT 15-OCT-1997 (first entry)  
XX  
XX Predatory cone snail venom alpha-conotoxin MG-1.

XX Conotoxin; venom; predatory; cone snail; Conus; A-lineage; inhibitor;  
KM synaptic transmission; neuromuscular junction; block; alpha-conotoxin;  
KW nicotinic acetylcholine receptor; kappa-conotoxin;  
XX voltage-sensitive potassium CHANNEL; sodium channel.

OS Conus magus.

PH Key Location/Qualifiers  
FT Modified-site 16 /note="optionally 4Hyp"

PN US5633347-A.

XX 27-MAY-1997.

XX 07-JUN-1995; 95US-00480750.

XX 29-JUN-1993; 93US-00084848.

XX 19-OCT-1993; 93US-00137800.

XX (UTAH) UNIT UTAH RES FOUND.

XX Hilliard DR, Cruz LJ, McIntosh JM, Santos AO, Olivera BM;

PI WPI, 1997-309336/28.

XX New kappa-conotoxin peptide(s) - present in venom of fish-hunting cone  
XX snail.

PS Disclosure; Col 5; 37pp; English.

XX The peptides AAM24878-W24900 represent novel toxin peptides isolated from  
CC the venom of various predatory cone snails of the genus Conus. The  
CC peptides are A-lineage conotoxin peptides which fall into 3 groups  
CC dependent on their amino acid sequences: (i) alpha-3/5 have a core  
CC sequence CCXXXCCXXXCC where X is any amino acid; (ii) alpha-4/7 have a  
CC core sequence CCXXXCCXXXCC; and (iii) kappa-7/21/3 have the core  
CC sequence CCXXXCCXXXCCXXXCC. The peptide presented here was isolated  
CC from Conus magus and falls into the alpha-4/7 category. Alpha-conotoxin  
CC peptides are potent inhibitors of synaptic transmission at the  
CC neuromuscular junction by blocking nicotinic acetylcholine receptors,  
CC whereas kappa-conotoxins have activities against voltage-sensitive  
CC potassium or sodium channels. (Updated on 25-MAR-2003 to correct PF  
CC field.)

XX Sequence 16 AA;

Query Match 93.1%; Score 95; DB 2; Length 16;  
Best Local Similarity 93.8%; Pred. No. 6.4e-05;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPCHLHNSNLC 16  
DB 1 GCCSNPCHLHNSNLC 16

RESULT 3  
AAM24899  
ID AAM24899 standard; peptide; 16 AA.

AC AAM24899;

DT 25-MAR-2003 (revised)  
DT 15-OCT-1997 (first entry)

XX Predatory cone snail venom alpha-conotoxin MII.

XX Conotoxin; venom; predatory; cone snail; Conus; A-lineage; inhibitor;  
KM synaptic transmission; neuromuscular junction; block; alpha-conotoxin;  
KW nicotinic acetylcholine receptor; kappa-conotoxin;  
XX voltage-sensitive potassium CHANNEL; sodium channel.

OS Conus magus.

PH Key Location/Qualifiers  
FT Modified-site 16 /note="amidated C-terminus"

PN US5633347-A.

XX 27-MAY-1997.

XX 07-JUN-1995; 95US-00480750.

XX 29-JUN-1993; 93US-00084848.

XX 19-OCT-1993; 93US-00137800.

XX (UTAH) UNIT UTAH RES FOUND.

XX Hilliard DR, Cruz LJ, McIntosh JM, Santos AO, Olivera BM;

PI WPI, 1997-309336/28.

XX New kappa-conotoxin peptide(s) - present in venom of fish-hunting cone  
XX snail.

PS Disclosure; Col 6; 37pp; English.

XX The peptides AAM24878-W24900 represent novel toxin peptides isolated from  
CC the venom of various predatory cone snails of the genus Conus. The  
CC peptides are A-lineage conotoxin peptides which fall into 3 groups  
CC dependent on their amino acid sequences: (i) alpha-3/5 have a core  
CC sequence CCXXXCCXXXCC where X is any amino acid; (ii) alpha-4/7 have a  
CC core sequence CCXXXCCXXXCC; and (iii) kappa-7/21/3 have the core  
CC sequence CCXXXCCXXXCCXXXCC. The peptide presented here was isolated  
CC from Conus magus and falls into the alpha-4/7 category. Alpha-conotoxin  
CC peptides are potent inhibitors of synaptic transmission at the  
CC neuromuscular junction by blocking nicotinic acetylcholine receptors,  
CC whereas kappa-conotoxins have activities against voltage-sensitive  
CC potassium or sodium channels. (Updated on 25-MAR-2003 to correct PF  
CC field.)

XX Sequence 16 AA;

Query Match 93.1%; Score 95; DB 2; Length 16;  
Best Local Similarity 93.8%; Pred. No. 6.4e-05;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPCHLHNSNLC 16  
DB 1 GCCSNPCHLHNSNLC 16

## RESULT 4

AAW12741  
ID AAW12741 standard; peptide; 16 AA.

AC AAW12741;

DT 25-MAR-2003 (revised)  
DT 16-APR-1997 (first entry)

XX A-lineage conotoxin peptide MG-1.

XX Polymerase chain reaction; PCR; primer; amplify; conotoxin; Conus;  
XX inhibitor; synaptic transmission; neuromuscular junction; sodium channel;  
XX nicotinic acetylcholine receptor; potassium channel; muscle relaxant;  
XX myasthenia gravis; small cell lung cancer; therapy.

OS Conus magus.

XX Key Location/Qualifiers

XX Modified-site 6 /note= "optionally hydroxylated"

XX Modified-site 16 /note= "amidated"

XX US5589340-A.

XX 31-DEC-1996.

XX 07-JUN-1995; 95US-00477383.

XX 29-JUN-1993; 93US-00084848.

XX 19-OCT-1993; 93US-00137800.

XX (UTAH ) UNIV UTAH RES FOUND.

XX Santos AD, Hillyard DR, McIntosh JM, Olivera BM, Cruz LJ;

XX WPI; 1997-076840/07.

XX Identifying nucleic acid encoding A-lineage conotoxin peptide(s) by  
XX amplification - uses primers corresponding to conserved regions in the  
XX signal sequence and 3'-untranslated regions, useful e.g. in treatment of  
XX small cell lung cancer.

XX Disclosure; Col 5; 36pp; English.

XX AAW12726-W12769 represent conotoxin peptides. This sequence represents  
XX the A-lineage conotoxin MG-1 peptide isolated from Conus magus. These  
XX sequences are identified using the method of the invention. The method of  
XX the invention is for identifying DNA encoding A-lineage conotoxin  
XX peptides by subjecting Conus nucleic acid to amplification with primer  
XX sequences (see AAT59714 and AAT59715). The primers are specific for the  
XX signal sequence and 3'-untranslated (3'UTR) regions of the conotoxin  
XX gene, which are highly homologous between conotoxins, and are therefore  
XX suitable sites for detection. A-lineage conotoxins include alpha-  
XX conotoxins, and kappa-conotoxins. Alpha-conotoxins are powerful  
XX inhibitors of synaptic transmission at the neuromuscular junction, and  
XX are usually nicotinic acetylcholine receptor blockers. Kappa-conotoxins  
XX act on the voltage sensitive sodium and potassium channels. The  
XX conotoxins identified can be used as muscle relaxants, in the diagnosis  
XX of myasthenia gravis, and for the treatment or diagnosis of small cell  
XX lung cancer. For the treatment of small cell lung cancer, the conotoxin  
XX peptides act by binding to the nicotinic receptors, and thereby blocking  
XX the nicotine/cytosine stimulated release of the mitogen 5-  
XX hydroxytryptamine. (Updated on 25-MAR-2003 to correct PF field.)

XX Sequence 16 AA;

XX Query Match 93.1%; Score 95; DB 2; Length 16;

XX Best Local Similarity 93.8%; Pred. No. 6.4e-05;

XX Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

XX 1 GCCSNPVCHEHSNLC 16

Db 1 GCCSNPVCHEHSNLC 16

RESULT 5  
AAW12753  
ID AAW12753 standard; peptide; 16 AA.

AC AAW12753;

DT 25-MAR-2003 (revised)  
DT 16-APR-1997 (first entry)

XX A-lineage conotoxin peptide MII.

XX Polymerase chain reaction; PCR; primer; amplify; conotoxin; Conus;  
XX inhibitor; synaptic transmission; neuromuscular junction; sodium channel;  
XX nicotinic acetylcholine receptor; potassium channel; muscle relaxant;  
XX myasthenia gravis; small cell lung cancer; therapy.

OS Conus magus.

XX Key Location/Qualifiers

XX Modified-site 16 /note= "amidated"

XX US5589340-A.

XX 31-DEC-1996.

XX 07-JUN-1995; 95US-00477383.

XX 29-JUN-1993; 93US-00084848.

XX 19-OCT-1993; 93US-00137800.

XX (UTAH ) UNIV UTAH RES FOUND.

XX Santos AD, Hillyard DR, McIntosh JM, Olivera BM, Cruz LJ;

XX WPI; 1997-076840/07.

XX Identifying nucleic acid encoding A-lineage conotoxin peptide(s) by  
XX amplification - uses primers corresponding to conserved regions in the  
XX signal sequence and 3'-untranslated regions, useful e.g. in treatment of  
XX small cell lung cancer.

XX Disclosure; Col 6; 36pp; English.

XX AAW12726-W12769 represent conotoxin peptides. This sequence represents  
XX the A-lineage conotoxin MII peptide isolated from Conus magus. These  
XX sequences are identified using the method of the invention. The method of  
XX the invention is for identifying DNA encoding A-lineage conotoxin  
XX peptides by subjecting Conus nucleic acid to amplification with primer  
XX sequences (see AAT59714 and AAT59715). The primers are specific for the  
XX signal sequence and 3'-untranslated (3'UTR) regions of the conotoxin  
XX gene, which are highly homologous between conotoxins, and are therefore  
XX suitable sites for detection. A-lineage conotoxins include alpha-  
XX conotoxins, and kappa-conotoxins. Alpha-conotoxins are powerful  
XX inhibitors of synaptic transmission at the neuromuscular junction, and  
XX are usually nicotinic acetylcholine receptor blockers. Kappa-conotoxins  
XX act on the voltage sensitive sodium and potassium channels. The  
XX conotoxins identified can be used as muscle relaxants, in the diagnosis  
XX of myasthenia gravis, and for the treatment or diagnosis of small cell  
XX lung cancer. For the treatment of small cell lung cancer, the conotoxin  
XX peptides act by binding to the nicotinic receptors, and thereby blocking  
XX the nicotine/cytosine stimulated release of the mitogen 5-  
XX hydroxytryptamine. (Updated on 25-MAR-2003 to correct PF field.)

XX Sequence 16 AA;

XX Query Match 93.1%; Score 95; DB 2; Length 16;

XX Best Local Similarity 93.8%; Pred. No. 6.4e-05;

XX Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPBCHLSNLC 16  
 DB 1 GCCSNPVCCHLSNLC 16

RESULT 6  
 AAM57903  
 ID AAM57903 standard; peptide; 16 AA.  
 AC AAM57903;  
 XX  
 DT 25-SEP-1998 (first entry)  
 XX  
 DE Conotoxin peptide MII.  
 XX  
 KW Conotoxin peptide; Iml; MII; cardiovascular agent; altered heart rate;  
 KW altered blood pressure; nicotinic acetylcholine receptor antagonist;  
 KW B neurone blocker; venom; marine snail; C neurone blocker;  
 XX sympathetic impulse.  
 OS Conus imperialis.  
 XX  
 PH Key Location/Qualifiers  
 FT Disulfide-bond 2. .8  
 FT Disulfide-bond 3. .16  
 XX  
 PN WO9822126-A1.  
 XX  
 PD 28-MAY-1998.  
 XX  
 PF 17-NOV-1997; 97WO-US020669.  
 XX  
 PR 18-NOV-1996; 96US-0031141P.  
 XX  
 PA (UTAH) UNIV UTAH RES FOUND.  
 XX  
 PI McIntosh JM, Olivera BM, Yoshikami D;  
 DR WPI; 1998-322346/28.  
 XX  
 PT Use of the conotoxin peptide(s) Iml and MII - as agents which can  
 PT regulate heart rate or blood pressure.  
 XX  
 PS Claim 1; Page 4; 24pp; English.  
 XX  
 CC This sequence represents the conotoxin peptide Iml. This sequence and the  
 CC MII conotoxin peptide (see AAM57903) can be used in the method of the  
 CC invention for the treatment of a patient who has an altered heart rate or  
 CC an altered blood pressure. The peptides are found in the venom of marine  
 CC snails of the genus Conus. They are active as nicotinic acetylcholine  
 CC receptor antagonists. They differentially block the B and C neurones, and  
 CC are thus able to differentially block sympathetic impulses to the heart  
 CC affecting the heart rate and blood pressure. The above agents are capable  
 CC of discretely affecting the heart rate or blood pressure, without  
 CC affecting other muscles  
 CC  
 SQ Sequence 16 AA;

Query Match 93.1%; Score 95; DB 2; Length 16;  
 Best Local Similarity 93.8%; Pred. No. 6.4e-05;  
 Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPBCHLSNLC 16  
 DB 1 GCCSNPVCCHLSNLC 16

RESULT 7  
 AAY24167  
 ID AAY24167 standard; peptide; 16 AA.  
 XX  
 AC AAY24167;

XX 10-SEP-1999 (first entry)  
 DT Alpha-conotoxin peptide SEQ ID NO:2.  
 XX  
 DE Alpha-conotoxin peptide SEQ ID NO:2.  
 XX  
 KW Alpha-conotoxin; neuronal nicotinic acetylcholine receptor; nAChR;  
 KW small cell lung carcinoma; cardiovascular disorder; nicotine addiction;  
 KW gastric motility disorder; urinary incontinence; mood disorder;  
 KW bipolar disorder; unipolar depression; dysthymia;  
 KW seasonal affective disorder.  
 XX  
 OS Conus magus.  
 XX  
 PN WO9933482-A1.  
 XX  
 PD 08-JUL-1999.  
 XX  
 PF 23-DEC-1998; 98WO-US027367.  
 XX  
 PR 31-DEC-1997; 97US-0070153P.  
 PR 03-APR-1998; 98US-0080588P.  
 XX  
 PA (UTAH) UNIV UTAH RES FOUND.  
 XX  
 PI Olivera BM, McIntosh JM, Yoshikami D, Cartier GE, Luo S;  
 DR WPI; 1999-405367/34.  
 XX  
 PT Alpha-conotoxin peptides that are used to treat disorders regulated at  
 PT neuronal nicotinic acetylcholine receptors.  
 XX  
 PS Disclosure; Page 6; 40pp; English.  
 XX  
 CC The present sequence represents an example of an alpha-conotoxin peptide,  
 CC which can be used to treat disorders regulated at neuronal nicotinic  
 CC acetylcholine receptors (nAChR). The alpha-conotoxins are useful for  
 CC preparing a pharmaceutical composition for treating disorders regulated  
 CC at neuronal nAChR, especially alpha 3 beta 2, alpha 3 beta 4 or alpha 7-  
 CC containing nAChR. Disorders that can be treated include cardiovascular  
 CC disorders, a gastric motility disorder, urinary incontinence, nicotine  
 CC addiction, a mood disorder or small cell lung carcinoma. Mood disorders  
 CC include bipolar disorder, unipolar depression, dysthymia and seasonal  
 CC affective disorder. The alpha-conotoxins can also be used for diagnosis  
 CC of small cell lung carcinoma. The alpha-conotoxin antagonists are able to  
 CC discriminate between non-symmetrical ligand binding interfaces present  
 CC on the nAChR. The alpha-conotoxin has the ability to potentially block any  
 CC receptor containing an alpha beta subunit interface, regardless of what  
 CC other subunits may be present in the receptor complex  
 CC  
 SQ Sequence 16 AA;

Query Match 93.1%; Score 95; DB 2; Length 16;  
 Best Local Similarity 93.8%; Pred. No. 6.4e-05;  
 Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPBCHLSNLC 16  
 DB 1 GCCSNPVCCHLSNLC 16

RESULT 8  
 AAY09520  
 ID AAY09520 standard; peptide; 16 AA.  
 XX  
 AC AAY09520;  
 XX  
 DT 20-JUL-1999 (first entry)  
 XX  
 DE Alpha conopeptide MII SEQ ID NO:1.  
 XX  
 KW Alpha conopeptide MII; alpha-4/7 conotoxin; cardiovascular agent;  
 KW neuronal nicotinic acetylcholine receptor; small cell lung carcinoma;  
 KW detection; gastric motility; urinary incontinence; anti-smoking agent.

XX OS Conus magus.  
 XX XX  
 XX Key Location/Qualifiers  
 FT Disulfide-bond 2. .8  
 FT Disulfide-bond 3. .16  
 XX  
 XX MO9921878-A1.  
 XX  
 XX 06-MAY-1999.  
 XX  
 XX 23-OCT-1998; 98WO-US022368.  
 XX  
 XX 24-OCT-1997; 97US-0062783P.  
 XX 14-NOV-1997; 97US-0065814P.  
 XX  
 XX (UTAH ) UNIV UTAH RES FOUND.  
 XX (UYCA-) UNIV CASE WESTERN RESERVE.  
 XX (SALK ) SALK INST.  
 XX (COGN-) COGNETIX INC.  
 XX  
 XX Shon K, Olivera BM, Rivier JE, Koerber SC, Shen GS, McIntosh JM,  
 XX Cartier GE, Yoshikami D;  
 XX WPI; 1999-326687/27.  
 XX  
 XX Derivatives of alpha-conotoxin and their analogs.  
 XX  
 XX Example 11; Page 51; 176pp; English.  
 XX  
 XX The present invention describes derivatives (I) of alpha-conotoxin MII  
 XX as (II). (I), and its mimetics, are useful as cardiovascular agents; for  
 XX treating or diagnosing small-cell lung carcinoma; and as gastric  
 XX motility, urinary incontinence and anti-smoking agents. (II) and their  
 XX mimetics can be designed to be selective for particular subtypes of  
 XX neuronal nicotinic acetylcholine receptor, particularly the alpha 3 beta  
 XX 2 and alpha 3 beta 4 subtypes. The present sequence represents the alpha-  
 XX conopeptide MII, which is used in an example from the present invention  
 XX  
 XX Sequence 16 AA;  
 XX  
 XX Query Match 93.1%; Score 95; DB 2; Length 16;  
 XX Best Local Similarity 93.8%; Pred. No. 6.4e-05;  
 XX Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 XX  
 XX 1 GCCSNPCHLHNSNLC 16  
 XX ||||| |||||  
 XX 1 GCCSNPCHLHNSNLC 16  
 XX  
 XX RESULT 9  
 XX AAY24156  
 XX ID AAY24156 standard; peptide; 17 AA.  
 XX  
 XX AAY24156;  
 XX  
 XX 10-SEP-1999 (first entry)  
 XX  
 XX Alpha-conotoxin peptide SEQ ID NO:3.  
 XX  
 XX Alpha-conotoxin; neuronal nicotinic acetylcholine receptor; nAChR;  
 XX small cell lung carcinoma; cardiovascular disorder; nicotine addiction;  
 XX gastric motility disorder; urinary incontinence; mood disorder;  
 XX bipolar disorder; unipolar depression; dysthymia;  
 XX seasonal affective disorder.  
 XX  
 XX Conus magus.  
 XX Synthetic.  
 XX MO9933482-A1.  
 XX 08-JUL-1999.

XX 23-DEC-1998; 98WO-US027367.  
 XX  
 XX 31-DEC-1997; 97US-0070153P.  
 XX 03-APR-1998; 98US-0080588P.  
 XX  
 XX (UTAH ) UNIV UTAH RES FOUND.  
 XX  
 XX Olivera BM, McIntosh JM, Yoshikami D, Cartier GE, Luo S;  
 XX WPI; 1999-405367/34.  
 XX  
 XX Alpha-conotoxin peptides that are used to treat disorders regulated at  
 XX neuronal nicotinic acetylcholine receptors.  
 XX  
 XX Claim 12; Page 27; 40pp; English.  
 XX  
 XX The present sequence represents a specifically claimed example of an  
 XX alpha-conotoxin from the general formula given in AAY24155, which can be  
 XX used to treat disorders regulated at neuronal nicotinic acetylcholine  
 XX receptors (nAChR). The alpha-conotoxins are useful for preparing a  
 XX pharmaceutical composition for treating disorders regulated at neuronal  
 XX nAChR, especially alpha 3 beta 2, alpha 3 beta 4 or alpha 7-containing  
 XX nAChR. Disorders that can be treated include cardiovascular disorders, a  
 XX gastric motility disorder, urinary incontinence, nicotine addiction, a  
 XX mood disorder or small cell lung carcinoma. Mood disorders include  
 XX bipolar disorder, unipolar depression, dysthymia and seasonal affective  
 XX disorder. The alpha-conotoxins can also be used for diagnosis of small  
 XX cell lung carcinoma. The alpha-conotoxin antagonists are able to  
 XX discriminate between non-symmetrical ligand binding interfaces present on  
 XX the nAChR. The alpha-conotoxin has the ability to potentially block any  
 XX receptor containing a alpha beta subunit interface, regardless of what  
 XX other subunits may be present in the receptor complex  
 XX  
 XX Sequence 17 AA;  
 XX  
 XX Query Match 93.1%; Score 95; DB 2; Length 17;  
 XX Best Local Similarity 93.8%; Pred. No. 6.7e-05;  
 XX Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 XX  
 XX 1 GCCSNPCHLHNSNLC 16  
 XX ||||| |||||  
 XX 2 GCCSNPCHLHNSNLC 17  
 XX  
 XX RESULT 10  
 XX AAY84657  
 XX ID AAY84657 standard; peptide; 19 AA.  
 XX  
 XX AAY84657;  
 XX  
 XX 25-JUL-2000 (first entry)  
 XX  
 XX Amino acid sequence of a cyclised conotoxin peptide.  
 XX  
 XX Cyclised conotoxin; omega-conotoxin; neurological disorder; pain; stroke;  
 XX traumatic brain injury; migraine; epilepsy; Parkinson's disease;  
 XX Alzheimer's disease; multiple sclerosis; depression; alpha-conotoxin;  
 XX neuropsychiatric disorder; schizophrenia; Tourette's syndrome;  
 XX mu-conotoxin.  
 XX  
 XX Synthetic.  
 XX Conus sp.  
 XX  
 XX Key Location/Qualifiers  
 XX MISC-difference 1. .19  
 XX Peptide /note="peptide is cyclised via these residues"  
 XX /note="conotoxin"  
 XX Peptide 1. .16  
 XX /note="linker"  
 XX MO200015654-A1.

XX 23-MAR-2000.  
 PD 14-SEP-1999; 99W0-AU000769.  
 XX 14-SEP-1998; 98AU-00005895.  
 PR 14-SEP-1998; 98AU-00005895.  
 XX (UYOU ) UNIV QUEENSLAND.  
 PA Craik DJ, Daly NL, Nielsen KJ;  
 PI WPI; 2000-271376/23.  
 DR Novel cyclized conotoxin peptides useful in the therapeutic treatment of  
 XX diseases in humans.  
 PS Claim 10, Page 31, 43pp; English.  
 XX AAY94654-58 represent cyclised conotoxin peptides of the invention. The  
 CC cyclised peptides have improved properties, compared to their linear  
 CC counterparts. These include resistance to cleavage by proteases, high  
 CC chemical stability, improved biophysical properties, reduced side effects  
 CC and improved bioavailability. Cyclised omega-conotoxin peptides block N-  
 CC type calcium channels, and so may be useful in the treatment of  
 CC neurological disorders, such as acute and chronic pain, stroke, traumatic  
 CC brain injury, migraine, epilepsy, Parkinson's disease, Alzheimer's  
 CC disease, multiple sclerosis, and depression. Alpha-conotoxins may be  
 CC useful in the treatment of neuropsychiatric disorders such as  
 CC schizophrenia, Parkinson's disease, Alzheimer's disease and Tourette's  
 CC syndrome. Mu-conotoxins interact with neuronal channels and may be used  
 CC to treat chronic and neuropathic pain. The cyclised conotoxin peptides  
 CC can be also used as neuropharmacological probes. Antibodies raised  
 CC against the peptides are useful as therapeutic or diagnostic agents, and  
 CC can be used to screen for the peptides  
 XX  
 SQ Sequence 19 AA;  
 Query Match 93.1%; Score 95; DB 3; Length 19;  
 Best Local Similarity 93.8%; Pred. No. 7.4e-05;  
 Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 GCCSNPBCLEHSNLC 16  
 DB 1 GCCSNPVCLEHSNLC 16  
 RESULT 11  
 AAB21579  
 ID AAB21579 standard; peptide; 41 AA.  
 XX  
 AC AAB21579;  
 XX  
 DT 19-JAN-2001 (first entry)  
 XX  
 DE Cone snail alpha-conotoxin SEQ ID NO: 286.  
 XX  
 KW Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.  
 XX  
 OS Conus achatinus.  
 XX  
 PN WO200044776-A1.  
 XX  
 PD 03-AUG-2000.  
 XX  
 PF 28-JAN-2000; 2000WO-US001979.  
 XX  
 PR 29-JAN-1999; 99US-0118381P.  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 PA (COGN-) COGNETIX INC.

XX  
 PI Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;  
 XX WPI; 2000-505965/45.  
 DR N-PSDB; AAA89475.  
 XX  
 PT alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 PT e.g. as neuromuscular blocking agents for use in surgery and for treating  
 XX unipolar depression.  
 PS Claim 39, Page 52, 229pp; English.  
 XX  
 CC The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snails.  
 CC These peptides are found in minute quantities in the venom of the snails,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC disorders, urinary incontinence, nicotine addiction, mood disorders such  
 CC as bipolar disorder, unipolar depression, dysthymia and seasonal  
 CC affective disorder, and small cell lung carcinoma  
 XX  
 SQ Sequence 41 AA;  
 Query Match 93.1%; Score 95; DB 3; Length 41;  
 Best Local Similarity 93.8%; Pred. No. 0.00015;  
 Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 GCCSNPBCLEHSNLC 16  
 DB 22 GCCSNPVCLEHSNLC 37  
 RESULT 12  
 AAB21426  
 ID AAB21426 standard; protein; 63 AA.  
 XX  
 AC AAB21426;  
 XX  
 DT 19-JAN-2001 (first entry)  
 XX  
 DE Cone snail alpha-conotoxin SEQ ID NO: 59.  
 XX  
 KW Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.  
 XX  
 OS Conus magus.  
 XX  
 PN WO200044776-A1.  
 XX  
 PD 03-AUG-2000.  
 XX  
 PF 28-JAN-2000; 2000WO-US001979.  
 XX  
 PR 29-JAN-1999; 99US-0118381P.  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 PA (COGN-) COGNETIX INC.  
 XX  
 PI Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;  
 XX WPI; 2000-505965/45.  
 DR N-PSDB; AAA89401.  
 XX  
 PT alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 PT e.g. as neuromuscular blocking agents for use in surgery and for treating  
 XX unipolar depression.

PS Claim 39; Page 31; 229pp; English.

CC The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.  
 CC These peptides are found in minute quantities in the venom of the snail,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC disorders, urinary incontinence, nicotine addiction, mood disorders such  
 CC as bipolar disorder, unipolar depression, dysrhythmia and seasonal  
 CC affective disorder, and small cell lung carcinoma

XX Sequence 63 AA;

Query Match 93.1%; Score 95; DB 3; Length 63;  
 Best Local Similarity 93.8%; Pred. No. 0.00021;  
 Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPBCHLHNSNLC 16  
 |||||  
 DB 44 GCCSNPBCHLHNSNLC 59

RESULT 13

AAB21473  
 ID AAB21473 standard; protein; 63 AA.

XX AAB21473;  
 AC AAB21473;

DT 19-JAN-2001 (first entry)

DE Cone snail alpha-conotoxin SEQ ID NO: 153.

XX Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.

XX Conus consors.

XX MO200044776-A1.

PD 03-AUG-2000.

PF 28-JAN-2000; 2000MO-US001979.

PR 29-JAN-1999; 99US-0118381P.

PA (UTAH) UNIV UTAH RES FOUND.  
 (COGN-) COGNETIX INC.

PI Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;

XX WPI; 2000-505965/45.

DR N-PSDB; AAA89448.

PT alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 e.g. as neuromuscular blocking agents for use in surgery and for treating  
 unipolar depression.

PS Claim 39; Page 45; 229pp; English.

CC The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.  
 CC These peptides are found in minute quantities in the venom of the snail,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine

CC receptors, including cardiovascular disorders, gastric motility  
 CC disorders, urinary incontinence, nicotine addiction, mood disorders such  
 CC as bipolar disorder, unipolar depression, dysrhythmia and seasonal  
 CC affective disorder, and small cell lung carcinoma

XX Sequence 63 AA;

Query Match 93.1%; Score 95; DB 3; Length 63;  
 Best Local Similarity 93.8%; Pred. No. 0.00021;  
 Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPBCHLHNSNLC 16  
 |||||  
 DB 44 GCCSNPBCHLHNSNLC 59

RESULT 14

AAB21448  
 ID AAB21448 standard; protein; 63 AA.

XX AAB21448;  
 AC AAB21448;

DT 19-JAN-2001 (first entry)

DE Cone snail alpha-conotoxin SEQ ID NO: 103.

XX Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.

XX Conus stercusmuscarrum.

XX MO200044776-A1.

PD 03-AUG-2000.

PF 28-JAN-2000; 2000MO-US001979.

PR 29-JAN-1999; 99US-0118381P.

PA (UTAH) UNIV UTAH RES FOUND.  
 (COGN-) COGNETIX INC.

PI Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;

XX WPI; 2000-505965/45.

DR N-PSDB; AAA89423.

PT alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 e.g. as neuromuscular blocking agents for use in surgery and for treating  
 unipolar depression.

PS Claim 39; Page 38; 229pp; English.

CC The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.  
 CC These peptides are found in minute quantities in the venom of the snail,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC disorders, urinary incontinence, nicotine addiction, mood disorders such  
 CC as bipolar disorder, unipolar depression, dysrhythmia and seasonal  
 CC affective disorder, and small cell lung carcinoma

XX Sequence 63 AA;

Query Match 91.2%; Score 93; DB 3; Length 63;  
 Best Local Similarity 87.5%; Pred. No. 0.00037;  
 Matches 14; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPBCHLEHSNLC 16  
 |||||  
 DB 44 GCCSNPVCCHLEHSNMC 59

## RESULT 15

AAV84658  
 ID AAV84658 standard; peptide; 19 AA.  
 XX

AC AAV84658;  
 XX

DT 25-JUL-2000 (first entry)  
 XX

DB Amino acid sequence of a cyclised conotoxin peptide.  
 XX

KM Cyclised conotoxin; omega-conotoxin; neurological disorder; pain; stroke;  
 KM traumatic brain injury; migraine; epilepsy; Parkinson's disease;  
 KW Alzheimer's disease; multiple sclerosis; depression; alpha-conotoxin;  
 KM neuropsychiatric disorder; schizophrenia; Tourette's syndrome;  
 KM mu-conotoxin.  
 XX

OS Synthetic.  
 OS Cons sp.  
 XX

## Key Location/Qualifiers

FT Misc-difference 1..19 /note="peptide is cyclised via these residues"  
 FT Peptide 1..15  
 FT Peptide /note="conotoxin"  
 FT Peptide 16..19  
 FT Peptide /note="linker"

PN WO200015654-A1.  
 XX

PD 23-MAR-2000.  
 XX

PF 14-SEP-1999; 99WO-AU000769.  
 XX

PR 14-SEP-1998; 98AU-00005895.  
 XX

PA (UYOU) UNIV QUEENSLAND.  
 XX

PI Craik DJ, Daly NL, Nielsen KJ;  
 XX

DR WPI; 2000-271376/23.  
 XX

PT Novel cyclised conotoxin peptides useful in the therapeutic treatment of  
 PT diseases in humans.  
 XX

PS Claim 10; Page 31; 43pp; English.  
 XX

CC AAV84654-58 represent cyclised conotoxin peptides of the invention. The  
 CC cyclised peptides have improved properties, compared to their linear  
 CC counterparts. These include resistance to cleavage by proteases, high  
 CC chemical stability, improved biophysical properties, reduced side effects  
 CC and improved bioavailability. Cyclised omega-conotoxin peptides block N-  
 CC type calcium channels, and so may be useful in the treatment of  
 CC neurological disorders such as acute and chronic pain, stroke, traumatic  
 CC brain injury, migraine, epilepsy, Parkinson's disease, Alzheimer's  
 CC disease, multiple sclerosis, and depression. Alpha-conotoxins may be  
 CC useful in the treatment of neuropsychiatric disorders such as  
 CC schizophrenia, Parkinson's disease, Alzheimer's disease and Tourette's  
 CC syndrome. Mu-conotoxins interact with neuronal channels and may be used  
 CC to treat chronic and neuropathic pain. The cyclised conotoxin peptides  
 CC can be also used as neuropharmacological probes. Antibodies raised  
 CC against the peptides are useful as therapeutic or diagnostic agents, and  
 CC can be used to screen for the peptides  
 XX

Sequence 19 AA;  
 SQ

Query Match 87.3%; Score 89; DB 3; Length 19;  
 Best Local Similarity 93.3%; Pred. No. 0.0004;

Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 2 CCSPBCHLEHSNLC 16  
 |||||  
 DB 1 CCSPVCCHLEHSNLC 15

Search completed: March 23, 2005, 00:03:09  
 Job time : 51.7492 secs



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OM protein - protein search, using SW model.

Run on: March 22, 2005, 22:51:32 ; Search time 12.9373 Seconds

(without alignments)  
92.321 Million cell updates/sec

Title: US-09-787-082a-24

Perfect score: 102

Sequence: 1 GCCSNPBCHELSNLC 16

Scoring table: BLOSUM62

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Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

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4: /cgn2\_6/prodata/1/1aa/6B\_COMB.pep:\*

5: /cgn2\_6/prodata/1/1aa/PCUTS\_COMB.pep:\*

6: /cgn2\_6/prodata/1/1aa/backfile1.pep:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match Length	ID	Description
1	95	93.1	16 1 US-08-477-383-54	Sequence 54, App1
2	95	93.1	16 1 US-08-487-174-54	Sequence 54, App1
3	95	93.1	16 1 US-08-480-750-54	Sequence 54, App1
4	95	93.1	16 3 US-09-219-446B-2	Sequence 2, App1
5	95	93.1	17 3 US-09-219-446B-3	Sequence 3, App1
6	95	93.1	41 4 US-09-493-795B-286	Sequence 286, App
7	95	93.1	63 4 US-09-493-795B-153	Sequence 153, App
8	95	93.1	68 1 US-08-137-800-48	Sequence 48, App1
9	95	93.1	68 1 US-08-477-383-48	Sequence 48, App1
10	95	93.1	68 1 US-08-487-174-48	Sequence 48, App1
11	95	93.1	68 1 US-08-480-750-48	Sequence 48, App1
12	95	93.1	63 4 US-09-493-795B-103	Sequence 103, App
13	95	93.1	63 4 US-08-137-800-19	Sequence 19, App1
14	95	93.1	16 1 US-08-477-383-19	Sequence 19, App1
15	95	93.1	16 1 US-08-487-174-19	Sequence 19, App1
16	95	93.1	16 1 US-08-480-750-19	Sequence 19, App1
17	95	93.1	16 5 PCT-US96-07962-10	Sequence 10, App1
18	95	93.1	41 4 US-09-493-795B-316	Sequence 316, App
19	95	93.1	60 4 US-09-493-795B-121	Sequence 121, App
20	95	93.1	60 4 US-09-493-795B-171	Sequence 171, App
21	95	93.1	16 4 US-09-493-795B-22	Sequence 22, App1
22	95	93.1	16 3 US-09-219-446B-4	Sequence 4, App1
23	95	93.1	16 3 US-09-219-446B-5	Sequence 5, App1
24	95	93.1	41 4 US-09-493-795B-288	Sequence 288, App
25	95	93.1	38 4 US-09-493-795B-392	Sequence 392, App
26	95	93.1	16 4 US-09-493-795B-187	Sequence 187, App
27	95	93.1	41 4 US-09-493-795B-284	Sequence 284, App

28	67	65.7	40 4 US-09-493-795B-310	Sequence 310, App
29	66	64.7	20 4 US-09-493-795B-45	Sequence 45, App1
30	65	63.7	60 4 US-09-493-795B-131	Sequence 131, App1
31	63	61.8	18 4 US-09-493-795B-79	Sequence 79, App1
32	63	61.8	20 4 US-09-493-795B-225	Sequence 225, App
33	63	61.8	40 4 US-09-493-795B-372	Sequence 372, App
34	63	61.8	64 4 US-09-493-795B-111	Sequence 111, App
35	62	60.8	39 4 US-09-493-795B-308	Sequence 308, App
36	62	60.8	61 4 US-09-493-795B-107	Sequence 107, App
37	61	59.8	40 4 US-09-493-795B-388	Sequence 388, App
38	61	59.8	60 4 US-09-493-795B-230	Sequence 230, App
39	60	58.8	39 4 US-09-493-795B-388	Sequence 388, App
40	60	58.8	41 4 US-09-493-795B-318	Sequence 318, App
41	59	57.8	38 4 US-09-493-795B-396	Sequence 396, App
42	59	57.8	61 4 US-09-493-795B-69	Sequence 69, App1
43	59	57.8	61 4 US-09-493-795B-71	Sequence 71, App1
44	59	57.8	61 4 US-09-493-795B-73	Sequence 73, App1
45	56.9	56.9	25 4 US-09-493-795B-306	Sequence 306, App

#### ALIGNMENTS

RESULT 1  
US-08-477-383-54  
Sequence 54, Application US/08477383  
Patent No. 5589340  
GENERAL INFORMATION:  
APPLICANT: Olivera, Balomero M.  
APPLICANT: Cruz, Lourdes J.  
APPLICANT: Hilliard, David R.  
APPLICANT: Macintosh, J. Michael  
APPLICANT: Santos, Aurelio S.  
TITLE OF INVENTION: Conotoxin Peptides  
NUMBER OF SEQUENCES: 59  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
STREET: 1201 New York Avenue, N.W., Suite 1000  
CITY: Washington  
STATE: DC  
COUNTRY: U.S.A.  
ZIP: 20005  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08477,383  
FILING DATE: -07-JUN-1995  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/137,800  
FILING DATE: 19-OCT-1993  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/084,848  
FILING DATE: 29-JUN-1993  
ATTORNEY/AGENT INFORMATION:  
NAME: Ihnen, Jeffrey L.  
REGISTRATION/DOCKET NUMBER: 28,957  
REFERENCE/DOCKET NUMBER: 24260-107673  
TELEPHONE: 202-962-4810  
TELEFAX: 202-962-8500  
INFORMATION FOR SEQ ID NO: 54:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 16 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:

ORGANISM: Conus magus  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 16  
OTHER INFORMATION: /note="The C-terminus is  
OTHER INFORMATION: amidated."  
US-08-477-383-54

Query Match 93.1%; Score 95; DB 1; Length 16;  
Best Local Similarity 93.8%; Pred. No. 1.9e-06;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPCHLHNSLC 16  
DB 1 GCCSNPCHLHNSLC 16

RESULT 2  
US-08-487-174-54  
Sequence 54, Application US/08487174  
Patent No. 5595972  
GENERAL INFORMATION:  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: Cruz, Lourdes J.  
APPLICANT: Hillyard, David R.  
APPLICANT: Macintosh, J. Michael  
APPLICANT: Santos, Ameurfin S.  
TITLE OF INVENTION: Conotoxin Peptides  
NUMBER OF SEQUENCES: 59  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
STREET: 1201 New York Avenue, N.W., Suite 1000  
CITY: Washington  
STATE: DC  
COUNTRY: U.S.A.  
ZIP: 20005  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/487,174  
FILING DATE: 07-JUN-1995  
CLASSIFICATION: 514  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/137,800  
FILING DATE: 19-OCT-1993  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/084,848  
FILING DATE: 29-JUN-1993  
ATTORNEY/AGENT INFORMATION:  
NAME: Ihnen, Jeffrey L.  
REGISTRATION NUMBER: 28,957  
REFERENCE/DOCKET NUMBER: 24260-107673  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-962-4810  
TELEFAX: 202-962-8300  
INFORMATION FOR SEQ ID NO: 54:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 16 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
ORGANISM: Conus magus  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 16  
OTHER INFORMATION: /note="The C-terminus is  
OTHER INFORMATION: amidated."

US-08-487-174-54

Query Match 93.1%; Score 95; DB 1; Length 16;  
Best Local Similarity 93.8%; Pred. No. 1.9e-06;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPCHLHNSLC 16  
DB 1 GCCSNPCHLHNSLC 16

RESULT 3  
US-08-480-750-54  
Sequence 54, Application US/08480750  
Patent No. 5633347  
GENERAL INFORMATION:  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: Cruz, Lourdes J.  
APPLICANT: Hillyard, David R.  
APPLICANT: Macintosh, J. Michael  
APPLICANT: Santos, Ameurfin S.  
TITLE OF INVENTION: Conotoxin Peptides  
NUMBER OF SEQUENCES: 59  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
STREET: 1201 New York Avenue, N.W., Suite 1000  
CITY: Washington  
STATE: DC  
COUNTRY: U.S.A.  
ZIP: 20005  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/480,750  
FILING DATE: 07-JUN-1995  
CLASSIFICATION: 530  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/137,800  
FILING DATE: 19-OCT-1993  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/084,848  
FILING DATE: 29-JUN-1993  
ATTORNEY/AGENT INFORMATION:  
NAME: Ihnen, Jeffrey L.  
REGISTRATION NUMBER: 28,957  
REFERENCE/DOCKET NUMBER: 24260-107673  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-962-4810  
TELEFAX: 202-962-8300  
INFORMATION FOR SEQ ID NO: 54:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 16 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
ORGANISM: Conus magus  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 16  
OTHER INFORMATION: /note="The C-terminus is  
OTHER INFORMATION: amidated."  
US-08-480-750-54

Query Match 93.1%; Score 95; DB 1; Length 16;  
Best Local Similarity 93.8%; Pred. No. 1.9e-06;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPCHLHNSNLC 16  
Db 1 GCCSNPCHLHNSNLC 16

## RESULT 4

US-09-219-446B-2  
Sequence 2, Application US/09219446B  
Patent No. 6265541  
GENERAL INFORMATION:  
APPLICANT: Oliveira, Baldomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Yoshikami, Doju  
APPLICANT: Cartier, G. Edward  
APPLICANT: Liao, Sigdn  
TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
FILE REFERENCE: Uses of Alpha-Conotoxins  
CURRENT APPLICATION NUMBER: US/09/219,446B  
CURRENT FILING DATE: 1998-12-23  
PRIOR APPLICATION NUMBER: US 60/080,588  
PRIOR FILING DATE: 1998-04-03  
PRIOR APPLICATION NUMBER: US 60/070,153  
PRIOR FILING DATE: 1997-12-31  
NUMBER OF SEQ ID NOS: 13  
SOFTWARE: Patentin Ver. 2.0  
SEQ ID NO 2  
LENGTH: 16  
TYPE: PRT  
ORGANISM: Conus magus  
US-09-219-446B-2

Query Match 93.1%; Score 95; DB 3; Length 16;  
Best Local Similarity 93.8%; Pred. No. 1.9e-06;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPCHLHNSNLC 16  
Db 1 GCCSNPCHLHNSNLC 16

## RESULT 5

US-09-219-446B-3  
Sequence 3, Application US/09219446B  
Patent No. 6265541  
GENERAL INFORMATION:  
APPLICANT: Oliveira, Baldomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Yoshikami, Doju  
APPLICANT: Cartier, G. Edward  
APPLICANT: Liao, Sigdn  
TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
FILE REFERENCE: Uses of Alpha-Conotoxins  
CURRENT APPLICATION NUMBER: US/09/219,446B  
CURRENT FILING DATE: 1998-12-23  
PRIOR APPLICATION NUMBER: US 60/080,588  
PRIOR FILING DATE: 1998-04-03  
PRIOR APPLICATION NUMBER: US 60/070,153  
PRIOR FILING DATE: 1997-12-31  
NUMBER OF SEQ ID NOS: 13  
SOFTWARE: Patentin Ver. 2.0  
SEQ ID NO 3  
LENGTH: 17  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: Tyr derivative  
US-09-219-446B-3

Query Match 93.1%; Score 95; DB 3; Length 17;  
Best Local Similarity 93.8%; Pred. No. 2e-06;

Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
QY 1 GCCSNPCHLHNSNLC 16  
Db 2 GCCSNPCHLHNSNLC 17

## RESULT 6

US-09-493-795B-286  
Sequence 286, Application US/09493795B  
Patent No. 6797808  
GENERAL INFORMATION:  
APPLICANT: Watkins, Maren  
APPLICANT: Oliveira, Baldomero M.  
APPLICANT: Hillyard, David R.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Jones, Robert M.  
TITLE OF INVENTION: Alpha-Conotoxin Peptides  
FILE REFERENCE: 2314-179.A  
CURRENT APPLICATION NUMBER: US/09/493,795B  
CURRENT FILING DATE: 2000-01-28  
PRIOR APPLICATION NUMBER: US 60/118,381  
PRIOR FILING DATE: 1999-01-29  
NUMBER OF SEQ ID NOS: 404  
SOFTWARE: Patentin Ver. 2.0  
SEQ ID NO 286  
LENGTH: 41  
TYPE: PRT  
ORGANISM: Conus achatinus  
US-09-493-795B-286

Query Match 93.1%; Score 95; DB 4; Length 41;  
Best Local Similarity 93.8%; Pred. No. 4.7e-06;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPCHLHNSNLC 16  
Db 22 GCCSNPCHLHNSNLC 37

## RESULT 7

US-09-493-795B-59  
Sequence 59, Application US/09493795B  
Patent No. 6797808  
GENERAL INFORMATION:  
APPLICANT: Watkins, Maren  
APPLICANT: Oliveira, Baldomero M.  
APPLICANT: Hillyard, David R.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Jones, Robert M.  
TITLE OF INVENTION: Alpha-Conotoxin Peptides  
FILE REFERENCE: 2314-179.A  
CURRENT APPLICATION NUMBER: US/09/493,795B  
CURRENT FILING DATE: 2000-01-28  
PRIOR APPLICATION NUMBER: US 60/118,381  
PRIOR FILING DATE: 1999-01-29  
NUMBER OF SEQ ID NOS: 404  
SOFTWARE: Patentin Ver. 2.0  
SEQ ID NO 59  
LENGTH: 63  
TYPE: PRT  
ORGANISM: Conus magus  
US-09-493-795B-59

Query Match 93.1%; Score 95; DB 4; Length 63;  
Best Local Similarity 93.8%; Pred. No. 7.1e-06;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPCHLHNSNLC 16  
Db 44 GCCSNPCHLHNSNLC 59

RESULT 8  
US-09-493-795B-153  
Sequence 153, Application US/09493795B  
Patent No. 6797808  
GENERAL INFORMATION:  
APPLICANT: Watkins, Maren  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: Hillyard, David R.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Jones, Robert M.  
TITLE OF INVENTION: Alpha-Conotoxin Peptides  
FILE REFERENCE: 2314-179.A  
CURRENT APPLICATION NUMBER: US/09/493,795B  
CURRENT FILING DATE: 2000-01-28  
PRIOR APPLICATION NUMBER: US 60/118,381  
PRIOR FILING DATE: 1999-01-29  
NUMBER OF SEQ ID NOS: 404  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 153  
LENGTH: 63  
TYPE: PRT  
ORGANISM: Conus consors  
US-09-493-795B-153

Query Match 93.1%; Score 95; DB 4; Length 63;  
Best Local Similarity 93.8%; Pred. No. 7.1e-06;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPCHLHSHNLC 16  
DB 44 GCCSNPCHLHSHNLC 59

RESULT 9  
US-08-137-800-48  
Sequence 48, Application US/08137800  
Patent No. 5514774  
GENERAL INFORMATION:  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: Cruz, Lourdes J.  
APPLICANT: Hillyard, David R.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Santos, Ameurifino S.  
TITLE OF INVENTION: Conotoxin Peptides  
NUMBER OF SEQUENCES: 53  
CORRESPONDENCE ADDRESS:  
ADDRESSER: Venable, Baetjer, Howard & Civiletti  
STREET: 1201 New York Avenue N.W., Suite 1000  
CITY: Washington  
STATE: DC  
ZIP: 20005  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: WordPerfect 5.1  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/137,800  
FILING DATE: 19-OCT-1993  
CLASSIFICATION: 530  
ATTORNEY/AGENT INFORMATION:  
NAME: Ihnen, Jeffrey L.  
REGISTRATION NUMBER: 28,957  
REFERENCE/DOCKET NUMBER: 24260-104763  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-962-4810  
TELEFAX: 202-962-8300  
INFORMATION FOR SEQ ID NO: 48:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 68 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: peptide

HYPOTHETICAL: NO  
ANTI-SENSE: NO  
ORIGINAL SOURCE:  
ORGANISM: Conus magus  
US-08-137-800-48

Query Match 93.1%; Score 95; DB 1; Length 68;  
Best Local Similarity 93.8%; Pred. No. 7.6e-06;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPCHLHSHNLC 16  
DB 49 GCCSNPCHLHSHNLC 64

RESULT 10  
US-08-477-383-48  
Sequence 48, Application US/08477383  
Patent No. 5589340  
GENERAL INFORMATION:  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: Cruz, Lourdes J.  
APPLICANT: Hillyard, David R.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Santos, Ameurifino S.  
TITLE OF INVENTION: Conotoxin Peptides  
NUMBER OF SEQUENCES: 59  
CORRESPONDENCE ADDRESS:  
ADDRESSER: Venable, Baetjer, Howard & Civiletti  
STREET: 1201 New York Avenue, N.W., Suite 1000  
CITY: Washington  
STATE: DC  
COUNTRY: U.S.A.  
ZIP: 20005  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/477,383  
FILING DATE: 07-JUN-1995  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/137,800  
FILING DATE: 19-OCT-1993  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/084,848  
FILING DATE: 29-JUN-1993  
ATTORNEY/AGENT INFORMATION:  
NAME: Ihnen, Jeffrey L.  
REGISTRATION NUMBER: 28,957  
REFERENCE/DOCKET NUMBER: 24260-107673  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-962-8300  
TELEFAX: 202-962-4810  
INFORMATION FOR SEQ ID NO: 48:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 68 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
ORGANISM: Conus magus  
US-08-477-383-48

Query Match 93.1%; Score 95; DB 1; Length 68;  
Best Local Similarity 93.8%; Pred. No. 7.6e-06;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPCHLHSHNLC 16

Db 49 GCCSNPVCHEHSNLC 64

## RESULT 11

US-08-487-174-48  
Sequence 48, Application US/08487174  
Patent No. 5595972  
GENERAL INFORMATION:  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: Cruz, Lourdes J.  
APPLICANT: Hillyard, David R.  
APPLICANT: Macintosh, J. Michael  
APPLICANT: Santos, Amurfin S.  
TITLE OF INVENTION: Conotoxin Peptides  
NUMBER OF SEQUENCES: 59  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
STREET: 1201 New York Avenue, N.W., Suite 1000  
CITY: Washington  
STATE: DC  
COUNTRY: U.S.A.  
ZIP: 20005  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/487,174  
FILING DATE: 07-JUN-1995  
CLASSIFICATION: 514  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/137,800  
FILING DATE: 19-OCT-1993  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/084,848  
FILING DATE: 29-JUN-1993  
ATTORNEY/AGENT INFORMATION:  
NAME: Ihnen, Jeffrey L.  
REGISTRATION NUMBER: 28,957  
REFERENCE/DOCKET NUMBER: 24260-107673  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-962-4810  
TELEFAX: 202-962-8300  
INFORMATION FOR SEQ ID NO: 48:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 68 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULAR TYPE: peptide  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
ORGANISM: Conus magus  
US-08-487-174-48

Query Match 93.1%; Score 95; DB 1; Length 68;  
Best Local Similarity 93.8%; Pred. No. 7.6e-06;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPVCHEHSNLC 16  
Db 49 GCCSNPVCHEHSNLC 64

RESULT 12  
US-08-480-750-48  
Sequence 48, Application US/08480750  
Patent No. 563347  
GENERAL INFORMATION:  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: Cruz, Lourdes J.

APPLICANT: Hillyard, David R.  
APPLICANT: Macintosh, J. Michael  
APPLICANT: Santos, Amurfin S.  
TITLE OF INVENTION: Conotoxin Peptides  
NUMBER OF SEQUENCES: 59  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
STREET: 1201 New York Avenue, N.W., Suite 1000  
CITY: Washington  
STATE: DC  
COUNTRY: U.S.A.  
ZIP: 20005  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/480,750  
FILING DATE: 07-JUN-1995  
CLASSIFICATION: 510  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/137,800  
FILING DATE: 19-OCT-1993  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/084,848  
FILING DATE: 29-JUN-1993  
ATTORNEY/AGENT INFORMATION:  
NAME: Ihnen, Jeffrey L.  
REGISTRATION NUMBER: 28,957  
REFERENCE/DOCKET NUMBER: 24260-107673  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-962-4810  
TELEFAX: 202-962-8300  
INFORMATION FOR SEQ ID NO: 48:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 68 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULAR TYPE: peptide  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
ORGANISM: Conus magus  
US-08-480-750-48

Query Match 93.1%; Score 95; DB 1; Length 68;  
Best Local Similarity 93.8%; Pred. No. 7.6e-06;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPVCHEHSNLC 16  
Db 49 GCCSNPVCHEHSNLC 64

RESULT 13  
US-09-493-795B-103  
Sequence 103, Application US/09493795B  
Patent No. 6797808  
GENERAL INFORMATION:  
APPLICANT: Watkins, Maren  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: Hillyard, David R.  
APPLICANT: Macintosh, J. Michael  
APPLICANT: Jones, Robert M.  
TITLE OF INVENTION: Alpha-Conotoxin Peptides  
FILE REFERENCE: 2314-179.A  
CURRENT APPLICATION NUMBER: US/09/493,795B  
CURRENT FILING DATE: 2000-01-28  
PRIOR APPLICATION NUMBER: US 60/118,381  
PRIOR FILING DATE: 1999-01-29  
NUMBER OF SEQ ID NOS: 404  
SOFTWARE: Patentin Ver. 2.0

SEQ ID NO 103  
LENGTH: 63  
TYPE: PRT  
ORGANISM: Conus stercusmuscumcarum  
US-09-493-795B-103

Query Match 91.2%; Score 93; DB 4; Length 63;  
Best Local Similarity 87.5%; Pred. No. 1.3e-05;  
Matches 14; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPBCHLEHSNLC 16  
DB 44 GCCSNVCHLEHSNMC 59

RESULT 14  
US-08-137-800-19  
Sequence 19, Application US/08137800

PATENT No. 5514774  
GENERAL INFORMATION:  
APPLICANT: OLIVERA, Baldomero M.  
APPLICANT: Cruz, Lourdes J.  
APPLICANT: Hilliard, David R.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Santos, Amelfino S.  
TITLE OF INVENTION: Conotoxin Peptides  
NUMBER OF SEQUENCES: 53  
CORRESPONDENCE ADDRESS:  
ADDRESSER: Venable, Baetjer, Howard & Civiletti  
STREET: 1201 New York Avenue N.W., Suite 1000  
CITY: Washington  
STATE: DC  
ZIP: 20005

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Wordperfect 5.1  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/137,800  
FILING DATE: 19-OCT-1993  
CLASSIFICATION: 530

ATTORNEY/AGENT INFORMATION:  
NAME: Ihnen, Jeffrey L.  
REGISTRATION NUMBER: 28,957  
REFERENCE/DOCKET NUMBER: 24260-104763  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-962-4810  
TELEFAX: 202-962-8300

INFORMATION FOR SEQ ID NO: 19:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 16 amino acids  
TYPE: amino acid

TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO

ANTI-SENSE: NO  
ORIGINAL SOURCE:  
ORGANISM: Conus magus

FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 6..7  
OTHER INFORMATION: /note= "Xaa is Pro or Hydroxy-Pro"

US-08-137-800-19  
Query Match 84.3%; Score 86; DB 1; Length 16;  
Best Local Similarity 87.5%; Pred. No. 2.9e-05;  
Matches 14; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 GCCSNPBCHLEHSNLC 16  
DB 1 GCCSNVCHLEHSNMC 16

RESULT 15  
US-08-477-383-19  
Sequence 19, Application US/08477383  
Patent No. 5589340  
GENERAL INFORMATION:

APPLICANT: OLIVERA, Baldomero M.  
APPLICANT: Cruz, Lourdes J.  
APPLICANT: Hilliard, David R.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Santos, Amelfino S.  
TITLE OF INVENTION: Conotoxin Peptides  
NUMBER OF SEQUENCES: 59  
CORRESPONDENCE ADDRESS:  
ADDRESSER: Venable, Baetjer, Howard & Civiletti  
STREET: 1201 New York Avenue, N.W., Suite 1000  
CITY: Washington  
STATE: DC  
COUNTRY: U.S.A.  
ZIP: 20005

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/477,383  
FILING DATE: 07-JUN-1995  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/137,800  
FILING DATE: 19-OCT-1993

PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/084,848  
FILING DATE: 29-JUN-1993  
ATTORNEY/AGENT INFORMATION:  
NAME: Ihnen, Jeffrey L.  
REGISTRATION NUMBER: 28,957  
REFERENCE/DOCKET NUMBER: 24260-107673  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-962-4810  
TELEFAX: 202-962-8300

INFORMATION FOR SEQ ID NO: 19:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 16 amino acids  
TYPE: amino acid  
STRANDEDNESS:

TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO

ORIGINAL SOURCE:  
ORGANISM: Conus magus

FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 6

OTHER INFORMATION: /note= "Xaa is Pro or Hydroxy-Pro."  
OTHER INFORMATION: /note= "The C-terminus is preferably amidated."  
US-08-477-383-19

Query Match 84.3%; Score 86; DB 1; Length 16;  
Best Local Similarity 87.5%; Pred. No. 2.9e-05;  
Matches 14; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 GCCSNPBCHLEHSNLC 16  
DB 1 GCCSNVCHLEHSNMC 16

Search completed: March 23, 2005, 00:20:52

Job time : 12.9373 secs



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Query Match 84.3%; Score 86; DB 14; Length 16;  
Best Local Similarity 81.2%; Pred. No. 0.00011;  
Matches 13; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 GCCSNPBCHLHSHSLC 16  
|||:|||||  
Db 1 GCCYHPTCHLHSHSLC 16

RESULT 10  
US-10-895-372-316

; Sequence 316, Application US/10895372  
; Publication No. US20050032705A1  
; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Oliveira, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-286  
; CURRENT APPLICATION NUMBER: US/10/895,372  
; PRIOR FILING DATE: 2004-07-21  
; PRIOR APPLICATION NUMBER: US 09/493,795  
; PRIOR FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: Patentin Ver. 2.0  
; SEQ ID NO 316  
; LENGTH: 41  
; TYPE: PRT  
; ORGANISM: Conus cactus  
US-10-895-372-316

Query Match 83.3%; Score 85; DB 17; Length 41;  
Best Local Similarity 81.2%; Pred. No. 0.00034;  
Matches 13; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 GCCSNPBCHLHSHSLC 16  
|||||  
Db 22 GCCSNPVCHEHPNAC 37

RESULT 11  
US-10-895-372-121

; Sequence 121, Application US/10895372  
; Publication No. US20050032705A1  
; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Oliveira, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-286  
; CURRENT APPLICATION NUMBER: US/10/895,372  
; PRIOR FILING DATE: 2004-07-21  
; PRIOR APPLICATION NUMBER: US 09/493,795  
; PRIOR FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: Patentin Ver. 2.0  
; SEQ ID NO 121  
; LENGTH: 60  
; TYPE: PRT  
; ORGANISM: Conus circumcinctus  
US-10-895-372-121

Query Match 79.4%; Score 81; DB 17; Length 60;  
Best Local Similarity 75.0%; Pred. No. 0.0016;

Matches 12; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 GCCSNPBCHLHSHSLC 16  
|||||:|||||  
Db 41 GCCSNPVCHEHPNAC 56

RESULT 12  
US-10-895-372-171

; Sequence 171, Application US/10895372  
; Publication No. US20050032705A1  
; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Oliveira, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-286  
; CURRENT APPLICATION NUMBER: US/10/895,372  
; PRIOR FILING DATE: 2004-07-21  
; PRIOR APPLICATION NUMBER: US 09/493,795  
; PRIOR FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: Patentin Ver. 2.0  
; SEQ ID NO 171  
; LENGTH: 16  
; TYPE: PRT  
; ORGANISM: Conus achatinus  
; FEATURE:  
; NAME/KEY: SITE  
; LOCATION: (6)..(10)  
; OTHER INFORMATION: Xaa at residue 6 is Pro or hydroxy-Pro; Xaa at  
; US-10-895-372-171

Query Match 78.4%; Score 80; DB 17; Length 16;  
Best Local Similarity 81.2%; Pred. No. 0.00066;  
Matches 13; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 GCCSNPBCHLHSHSLC 16  
|||||  
Db 1 GCCSNPVCHEHPNAC 16

RESULT 13  
US-10-895-372-22

; Sequence 22, Application US/10895372  
; Publication No. US20050032705A1  
; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Oliveira, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-286  
; CURRENT APPLICATION NUMBER: US/10/895,372  
; PRIOR FILING DATE: 2004-07-21  
; PRIOR APPLICATION NUMBER: US 09/493,795  
; PRIOR FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: Patentin Ver. 2.0  
; SEQ ID NO 22  
; LENGTH: 16  
; TYPE: PRT  
; ORGANISM: Conus stercusmuscarrum  
; FEATURE:  
; NAME/KEY: SITE

US-10-895-372-286

Query Match 93.1%; Score 95; DB 17; Length 41;  
Best Local Similarity 93.8%; Pred. No. 1.7e-05;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPCHLHNSNLC 16  
DB 22 GCCSNPCHLHNSNLC 37

RESULT 6

US-10-895-372-59  
; Sequence 59, Application US/10895372  
; Publication No. US20050032705A1  
; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Oliviera, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-286  
; CURRENT APPLICATION NUMBER: US/10/895,372  
; CURRENT FILING DATE: 2004-07-21  
; PRIOR APPLICATION NUMBER: US 09/493,795  
; PRIOR FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; PRIOR FILING DATE: 1999-01-29  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: Patentin Ver. 2.0  
; SEQ ID NO 59  
; LENGTH: 63  
; TYPE: PRT  
; ORGANISM: Conus magus  
US-10-895-372-59

Query Match 93.1%; Score 95; DB 17; Length 63;  
Best Local Similarity 93.8%; Pred. No. 2.4e-05;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPCHLHNSNLC 16  
DB 44 GCCSNPCHLHNSNLC 59

RESULT 7

US-10-895-372-153  
; Sequence 153, Application US/10895372  
; Publication No. US20050032705A1  
; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Oliviera, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-286  
; CURRENT APPLICATION NUMBER: US/10/895,372  
; CURRENT FILING DATE: 2004-07-21  
; PRIOR APPLICATION NUMBER: US 09/493,795  
; PRIOR FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; PRIOR FILING DATE: 1999-01-29  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: Patentin Ver. 2.0  
; SEQ ID NO 153  
; LENGTH: 63  
; TYPE: PRT  
; ORGANISM: Conus consors  
US-10-895-372-153

Query Match 93.1%; Score 95; DB 17; Length 63;

Best Local Similarity 93.8%; Pred. No. 2.4e-05;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPCHLHNSNLC 16  
DB 44 GCCSNPCHLHNSNLC 59

RESULT 8

US-10-895-372-103  
; Sequence 103, Application US/10895372  
; Publication No. US20050032705A1  
; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Oliviera, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-286  
; CURRENT APPLICATION NUMBER: US/10/895,372  
; CURRENT FILING DATE: 2004-07-21  
; PRIOR APPLICATION NUMBER: US 09/493,795  
; PRIOR FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; PRIOR FILING DATE: 1999-01-29  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: Patentin Ver. 2.0  
; SEQ ID NO 103  
; LENGTH: 63  
; TYPE: PRT  
; ORGANISM: Conus stercusmuscarum  
US-10-895-372-103

Query Match 91.2%; Score 93; DB 17; Length 63;  
Best Local Similarity 87.5%; Pred. No. 4.4e-05;  
Matches 14; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPCHLHNSNLC 16  
DB 44 GCCSNPCHLHNSNLC 59

RESULT 9

US-10-072-602B-608  
; Sequence 608, Application US/10072602B  
; Publication No. US20030109670A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Oliviera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James B.  
; APPLICANT: Cruz, Lourdes J.  
; APPLICANT: Grilley, Michelle  
; APPLICANT: Schoenfeld, Robert M.  
; APPLICANT: Walker, Craig  
; APPLICANT: Shetty, Reshma  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Cone Snail Peptides  
; FILE REFERENCE: 2314-249  
; CURRENT APPLICATION NUMBER: US/10/072,602B  
; CURRENT FILING DATE: 2002-02-11  
; PRIOR APPLICATION NUMBER: US 60/267,408  
; PRIOR FILING DATE: 2001-02-09  
; NUMBER OF SEQ ID NOS: 638  
; SOFTWARE: Patentin version 3.0  
; SEQ ID NO 608  
; LENGTH: 16  
; TYPE: PRT  
; ORGANISM: Conus magus  
US-10-072-602B-608

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 23:46:47 ; Search time 36.4884 Seconds  
(without alignments)  
144.941 Million cell updates/sec

Title: US-09-787-082a-24

Perfect score: 102

Sequence: 1 GCCSNPCHLHNSNLC 16

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1401741 seqs, 330541175 residues

Total number of hits satisfying chosen parameters: 1401741

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

Published Applications AA:\*  
1: /cgn2\_6/ptodata/2/pubppa/US07\_PUBCOMB.pep:\*  
2: /cgn2\_6/ptodata/2/pubppa/US06\_PUBCOMB.pep:\*  
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6: /cgn2\_6/ptodata/2/pubppa/US07\_PUBCOMB.pep:\*  
7: /cgn2\_6/ptodata/2/pubppa/US08\_PUBCOMB.pep:\*  
8: /cgn2\_6/ptodata/2/pubppa/US08\_PUBCOMB.pep:\*  
9: /cgn2\_6/ptodata/2/pubppa/US09\_PUBCOMB.pep:\*  
10: /cgn2\_6/ptodata/2/pubppa/US09\_PUBCOMB.pep:\*  
11: /cgn2\_6/ptodata/2/pubppa/US09\_PUBCOMB.pep:\*  
12: /cgn2\_6/ptodata/2/pubppa/US09\_PUBCOMB.pep:\*  
13: /cgn2\_6/ptodata/2/pubppa/US10\_PUBCOMB.pep:\*  
14: /cgn2\_6/ptodata/2/pubppa/US10\_PUBCOMB.pep:\*  
15: /cgn2\_6/ptodata/2/pubppa/US10\_PUBCOMB.pep:\*  
16: /cgn2\_6/ptodata/2/pubppa/US10\_PUBCOMB.pep:\*  
17: /cgn2\_6/ptodata/2/pubppa/US10\_PUBCOMB.pep:\*  
18: /cgn2\_6/ptodata/2/pubppa/US11\_PUBCOMB.pep:\*  
19: /cgn2\_6/ptodata/2/pubppa/US11\_PUBCOMB.pep:\*  
20: /cgn2\_6/ptodata/2/pubppa/US60\_PUBCOMB.pep:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARYS

Result No.	Score	Query Match	Length	DB ID	Description
1	95	93.1	16	9	US-09-897-465-2
2	95	93.1	16	16	US-10-827-369-2
3	95	93.1	17	9	US-09-897-465-3
4	95	93.1	17	16	US-10-827-369-3
5	95	93.1	41	17	US-10-895-372-286
6	95	93.1	63	17	US-10-895-372-59
7	95	93.1	63	17	US-10-895-372-153
8	93	91.2	63	17	US-10-895-372-103
9	86	84.3	16	14	US-10-072-602B-608
10	85	83.3	41	17	US-10-895-372-316
11	81	79.4	60	17	US-10-895-372-121
12	80	78.4	16	17	US-10-895-372-171
13	76.5	76.5	16	17	US-10-895-372-22

14	75	73.5	16	9	US-09-897-465-4	Sequence 4, Appl1
15	75	73.5	16	16	US-10-827-369-4	Sequence 4, Appl1
16	73	71.6	16	16	US-10-072-602B-417	Sequence 417, App
17	73	71.6	41	17	US-10-895-372-288	Sequence 288, App
18	72	70.6	38	17	US-10-895-372-352	Sequence 352, App
19	71	69.6	16	17	US-10-895-372-187	Sequence 187, App
20	71	69.6	40	17	US-10-895-372-284	Sequence 284, App
21	67	65.7	40	17	US-10-895-372-310	Sequence 310, App
22	66	64.7	20	17	US-10-895-372-45	Sequence 45, Appl
23	65	63.7	60	17	US-10-895-372-131	Sequence 131, App
24	63	61.8	17	14	US-10-072-602B-605	Sequence 605, App
25	63	61.8	18	17	US-10-895-372-79	Sequence 79, Appl
26	63	61.8	20	17	US-10-895-372-225	Sequence 225, App
27	63	61.8	40	17	US-10-895-372-372	Sequence 372, App
28	63	61.8	60	14	US-10-072-602B-409	Sequence 409, App
29	63	61.8	64	17	US-10-895-372-111	Sequence 111, App
30	62	60.8	39	17	US-10-895-372-308	Sequence 308, App
31	62	60.8	61	17	US-10-895-372-107	Sequence 107, App
32	61	59.8	40	17	US-10-895-372-338	Sequence 338, App
33	61	59.8	60	17	US-10-895-372-290	Sequence 290, App
34	60	58.8	39	17	US-10-895-372-388	Sequence 388, App
35	60	58.8	41	17	US-10-895-372-318	Sequence 318, App
36	59	57.8	38	17	US-10-895-372-336	Sequence 336, App
37	59	57.8	61	17	US-10-895-372-69	Sequence 69, Appl
38	59	57.8	61	17	US-10-895-372-71	Sequence 71, Appl
39	59	57.8	61	17	US-10-895-372-73	Sequence 73, Appl
40	58	56.9	17	14	US-10-072-602B-610	Sequence 610, App
41	58	56.9	25	17	US-10-895-372-306	Sequence 306, App
42	58	56.9	39	17	US-10-895-372-332	Sequence 332, App
43	58	56.9	41	17	US-10-895-372-334	Sequence 334, App
44	58	56.9	64	14	US-10-072-602B-422	Sequence 422, App
45	58	56.9	64	17	US-10-895-372-135	Sequence 135, App

#### ALIGNMENTS

RESULT 1  
US-09-897-465-2  
Sequence 2, Application US/09897465  
Patent No. US2002022715A1  
GENERAL INFORMATION:  
APPLICANT: Olvera, Baldomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Yoshikami, Doju  
APPLICANT: Cartier, G. Edward  
APPLICANT: Luo, Sign  
TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
FILE REFERENCE: Uses of Alpha-Conotoxins  
CURRENT APPLICATION NUMBER: US/09/897,465  
CURRENT FILING DATE: 2001-07-03  
PRIOR APPLICATION NUMBER: US 60/080,588  
PRIOR FILING DATE: 1998-04-03  
PRIOR APPLICATION NUMBER: US 60/070,153  
PRIOR FILING DATE: 1997-12-31  
NUMBER OF SEQ ID NOS: 13  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 2  
LENGTH: 16  
TYPE: PRT  
ORGANISM: Conus magus  
US-09-897-465-2

Query Match 93.1%; Score 95; DB 9; Length 16;  
Best Local Similarity 93.8%; Pred. No. 7.2e-06;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPCHLHNSNLC 16  
DB 1 GCCSNPCHLHNSNLC 16

RESULT 2  
US-10-827-369-2  
Sequence 2, Application US/10827369  
Publication No. US20040192610A1  
GENERAL INFORMATION:  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Yoshikami, Doju  
APPLICANT: Cartier, G. Edward  
APPLICANT: Luo, Siglin  
APPLICANT: University of Utah Research Foundation  
TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
FILE REFERENCE: 2314-278  
CURRENT APPLICATION NUMBER: US/10/827,369  
CURRENT FILING DATE: 2004-04-20  
PRIOR APPLICATION NUMBER: US 09/897,465  
PRIOR FILING DATE: 2001-07-03  
PRIOR APPLICATION NUMBER: US 09/219,446  
PRIOR FILING DATE: 1998-12-23  
PRIOR APPLICATION NUMBER: US 60/080,588  
PRIOR FILING DATE: 1998-04-03  
PRIOR APPLICATION NUMBER: US 60/070,153  
PRIOR FILING DATE: 1997-12-31  
NUMBER OF SEQ ID NOS: 13  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 2  
LENGTH: 16  
TYPE: PRT  
ORGANISM: Conus magus  
US-10-827-369-2

Query Match 93.1%; Score 95; DB 16; Length 16;  
Best Local Similarity 93.8%; Pred. No. 7.2e-06;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPBCHEHSNLC 16  
DB 1 GCCSNPVCHEHSNLC 16

RESULT 3  
US-09-897-465-3  
Sequence 3, Application US/09897465  
Patent No. US2002022715A1  
GENERAL INFORMATION:  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Yoshikami, Doju  
APPLICANT: Cartier, G. Edward  
APPLICANT: Luo, Siglin  
APPLICANT: University of Utah Research Foundation  
TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
FILE REFERENCE: Uses of Alpha-Conotoxins  
CURRENT APPLICATION NUMBER: US/09/897,465  
CURRENT FILING DATE: 2001-07-03  
PRIOR APPLICATION NUMBER: US 60/080,588  
PRIOR FILING DATE: 1998-04-03  
PRIOR APPLICATION NUMBER: US 60/070,153  
PRIOR FILING DATE: 1997-12-31  
NUMBER OF SEQ ID NOS: 13  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 3  
LENGTH: 17  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURES:  
OTHER INFORMATION: Description of Artificial Sequence: Tyr derivative  
OTHER INFORMATION: of C. magus MI  
US-09-897-465-3

Query Match 93.1%; Score 95; DB 9; Length 17;  
Best Local Similarity 93.8%; Pred. No. 7.6e-06;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPBCHEHSNLC 16  
DB 2 GCCSNPVCHEHSNLC 17

RESULT 4  
US-10-827-369-3  
Sequence 3, Application US/10827369  
Publication No. US20040192610A1  
GENERAL INFORMATION:  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Yoshikami, Doju  
APPLICANT: Cartier, G. Edward  
APPLICANT: Luo, Siglin  
APPLICANT: University of Utah Research Foundation  
TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
FILE REFERENCE: 2314-278  
CURRENT APPLICATION NUMBER: US/10/827,369  
CURRENT FILING DATE: 2004-04-20  
PRIOR APPLICATION NUMBER: US 09/897,465  
PRIOR FILING DATE: 2001-07-03  
PRIOR APPLICATION NUMBER: US 09/219,446  
PRIOR FILING DATE: 1998-12-23  
PRIOR APPLICATION NUMBER: US 60/080,588  
PRIOR FILING DATE: 1998-04-03  
PRIOR APPLICATION NUMBER: US 60/070,153  
PRIOR FILING DATE: 1997-12-31  
NUMBER OF SEQ ID NOS: 13  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 3  
LENGTH: 17  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURES:  
OTHER INFORMATION: Description of Artificial Sequence: Tyr derivative  
OTHER INFORMATION: of C. magus MI  
US-10-827-369-3

Query Match 93.1%; Score 95; DB 16; Length 17;  
Best Local Similarity 93.8%; Pred. No. 7.6e-06;  
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSNPBCHEHSNLC 16  
DB 2 GCCSNPVCHEHSNLC 17

RESULT 5  
US-10-895-372-286  
Sequence 286, Application US/10895372  
Publication No. US20050032705A1  
GENERAL INFORMATION:  
APPLICANT: Watkins, Maren  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: Hillyard, David R.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Jones, Robert M.  
TITLE OF INVENTION: Alpha-Conotoxin Peptides  
FILE REFERENCE: 2314-286  
CURRENT APPLICATION NUMBER: US/10/895,372  
CURRENT FILING DATE: 2004-07-21  
PRIOR APPLICATION NUMBER: US 09/493,795  
PRIOR FILING DATE: 2000-01-28  
PRIOR APPLICATION NUMBER: US 60/118,381  
PRIOR FILING DATE: 1999-01-29  
NUMBER OF SEQ ID NOS: 404  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 286  
LENGTH: 41  
TYPE: PRT  
ORGANISM: Conus achatinus

LOCATION: (6)..(11)  
OTHER INFORMATION: Xaa at residue 6 is Pro or hydroxy-Pro; Xaa at  
OTHER INFORMATION: residue 11 is Glu or gamma-carboxy-Glu.  
US-10-895-372-22

Query Match 76.5%; Score 78; DB 17; Length 16;  
Best Local Similarity 75.0%; Pred. No. 0.0012;  
Matches 12; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 GCCSNPBCHLHNSLC 16  
|||||  
Db 1 GCCSNVPCFATHSNLC 16

RESULT 14  
US-09-897-465-4  
Sequence 4, Application US/09897465  
Patent No. US20020022715A1  
GENERAL INFORMATION:  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Yoshikami, Doju  
APPLICANT: Cartier, G. Edward  
APPLICANT: Luo, Siglin  
APPLICANT: University of Utah Research Foundation  
TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
FILE REFERENCE: Uses of Alpha-Conotoxins  
CURRENT APPLICATION NUMBER: US/09/897,465  
PRIOR FILING DATE: 2001-07-03  
PRIOR APPLICATION NUMBER: US 60/080,588  
PRIOR FILING DATE: 1998-04-03  
PRIOR APPLICATION NUMBER: US 60/070,153  
PRIOR FILING DATE: 1997-12-31  
NUMBER OF SEQ ID NOS: 13  
SOFTWARE: Patentin Ver. 2.0  
SEQ ID NO 4  
LENGTH: 16  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: FAT derivative  
US-09-897-465-4

Query Match 73.5%; Score 75; DB 9; Length 16;  
Best Local Similarity 75.0%; Pred. No. 0.003;  
Matches 12; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

QY 1 GCCSNPBCHLHNSLC 16  
|||||  
Db 1 GCCSNVPCFATHSNLC 16

RESULT 15  
US-10-827-369-4  
Sequence 4, Application US/10827369  
Publication No. US20040192610A1  
GENERAL INFORMATION:  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Yoshikami, Doju  
APPLICANT: Cartier, G. Edward  
APPLICANT: Luo, Siglin  
APPLICANT: University of Utah Research Foundation  
TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
FILE REFERENCE: 2314-278  
CURRENT APPLICATION NUMBER: US/10/827,369  
PRIOR FILING DATE: 2004-04-20  
PRIOR APPLICATION NUMBER: US 09/897,465  
PRIOR FILING DATE: 2001-07-03  
PRIOR APPLICATION NUMBER: US 09/219,446  
PRIOR FILING DATE: 1998-12-23  
PRIOR APPLICATION NUMBER: US 60/080,588

PRIOR FILING DATE: 1998-04-03  
PRIOR APPLICATION NUMBER: US 60/070,153  
PRIOR FILING DATE: 1997-12-31  
NUMBER OF SEQ ID NOS: 13  
SOFTWARE: Patentin Ver. 2.0  
SEQ ID NO 4  
LENGTH: 16  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: FAT derivative  
US-10-827-369-4

Query Match 73.5%; Score 75; DB 16; Length 16;  
Best Local Similarity 75.0%; Pred. No. 0.003;  
Matches 12; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

QY 1 GCCSNPBCHLHNSLC 16  
|||||  
Db 1 GCCSNVPCFATHSNLC 16

Search completed: March 23, 2005, 00:35:06  
Job time : 36.5599 secs

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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:45:36 ; Search time 72.0891 Seconds

(without alignments)  
191.792 Million cell updates/sec

Title: US-09-787-082a-17

Perfect score: 146

Sequence: 1 CLSXGSSCSXTSYNCRSCNXYSRKC 27

Scoring table:

BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Listing first 45 summaries

Database :

1: uniprot\_03:\*  
2: uniprot\_trembl:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	132	90.4	26	1	CSX6 CONTU
2	117	80.1	73	1	CSX6 CONGR
3	92	63.0	27	1	CSX6 CONRA
4	79	54.1	29	1	CSX7 CONGE
5	69	47.3	115	1	CSX5 PIMHY
6	68	46.6	72	2	CSXCT8
7	68	46.6	72	2	CSXCT9
8	68	46.6	77	1	CSX5 CONST
9	67.5	46.2	66	2	CSX625
10	67.5	46.2	66	2	CSX628
11	67.5	46.2	66	2	CSX628
12	67.5	46.2	66	2	CSX628
13	67.5	46.2	66	2	CSX628
14	67.5	46.2	66	2	CSX628
15	67.5	46.2	66	2	CSX628
16	67.5	46.2	71	1	CSX6 CONCT
17	66.5	45.5	25	1	CSX6 CONMA
18	66.5	45.5	29	1	CSX6 CONMA
19	66.5	45.5	29	1	CSX6 CONMA
20	66.5	45.5	66	2	CSX628
21	66.5	45.5	66	2	CSX628
22	66.5	45.5	66	2	CSX628
23	66.5	45.5	66	2	CSX628
24	66.5	45.5	66	2	CSX628
25	63.5	43.5	25	1	CSX6 CONCT
26	62.5	42.8	66	2	CSX628
27	62.5	42.8	66	2	CSX628
28	62.5	42.8	66	2	CSX628
29	62.5	42.8	66	2	CSX628
30	62.5	42.8	66	2	CSX628
31	62.5	42.8	66	2	CSX628

32	62.5	42.8	66	2	CSXCV7	CSXCV7 conus catus
33	62.5	42.8	66	2	CSXCM1	CSXCM1 conus catus
34	62.5	42.8	66	2	CSXCM3	CSXCM3 conus catus
35	62.5	42.8	66	2	CSXCM5	CSXCM5 conus catus
36	62.5	42.8	66	2	CSXCM6	CSXCM6 conus catus
37	62.5	42.8	71	1	CSX3 CONST	CSX3 CONST
38	62	42.5	74	2	CSXCM4	CSXCM4 conus catus
39	61.5	42.1	66	2	CSXCM4	CSXCM4 conus catus
40	60.5	41.4	34	1	CSXCV8	CSXCV8 conus catus
41	60.5	41.4	35	1	AD01 AGRDO	AD01 AGRDO
42	60	41.1	35	1	AD01 AGRDO	AD01 AGRDO
43	59.5	40.8	73	1	CSX6 CONCT	CSX6 CONCT
44	58.5	40.1	35	1	CSX6 CONCT	CSX6 CONCT
45	58	39.7	36	1	CSX6 CONCT	CSX6 CONCT

## ALIGNMENTS

RESULT 1	CSX6 CONTU	STANDARD	PRT	26 AA.
AC	P58915			
DT	28-FEB-2003 (Rel. 41, Created)			
DT	28-FEB-2003 (Rel. 41, Last sequence update)			
DT	05-JUL-2004 (Rel. 44, Last annotation update)			
DE	Omega-conotoxin TVIA (SNX-185).			
OS	Conus tulipa (fish-hunting cone snail) (Tulip cone).			
OC	Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;			
OC	Apogastropoda; Caenogastropoda; Sorbeconcha; Hyposogastropoda;			
OC	Neogastropoda; Conidae; Conus.			
OX	NCBI_TaxID=6495;			
RN	[1]			
RP	SEQUENCE, SYNTHESIS, AND DISULFIDE BONDS.			
RX	MEDLINE=96122182; PubMed=8537186;			
RA	Chung D., Gaur S., Bell J.R., Ramachandran J., Nadeedi L.;			
RT	"Determination of disulfide bridge pattern in omega-conopeptides.";			
RL	Int. J. Pept. Protein Res. 46:320-325(1995).			
RN	[2]			
RP	SEQUENCE OF 1-16.			
RA	Miljanich G.P., Bitner R.S., Bowersox S.S., Fox J.A., Valentino K.L.;			
RT	"Method of treating ischemia-related neuronal damage.";			
RL	Patent number US5051403, 24-SEP-1991.			
RN	[3]			
RP	REVIEW.			
RX	MEDLINE=95321729; PubMed=7598513;			
RA	DOI=10.1146/annurev.pa.35.040195.003423;			
RT	Miljanich G.P., Ramachandran J.;			
RL	"Antagonists of neuronal calcium channels: structure, function, and therapeutic implications.";			
RL	Annu. Rev. Pharmacol. Toxicol. 35:707-734(1995).			
CC	-1- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind			
CC	and block voltage-sensitive calcium channels (VSCC).			
CC	-1- SUBCELLULAR LOCATION: Secreted.			
CC	-1- TISSUE SPECIFICITY: Expressed by the venom duct.			
CC	-1- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type			
CC	family.			
KW	Calcium channel inhibitor; Direct protein sequencing; Hydroxylation;			
KW	ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Toxin.			
FT	DISULFID 1 16			
FT	DISULFID 8 19			
FT	DISULFID 15 26			
FT	MOD RES 4 4			
FT	MOD RES 10 10			
FT	MOD RES 21 21			
SO	SEQUENCE 26 AA; 2804 MW; A70926F3871A7883 CRC64;			
QY	Query Match	90.4%	Score 132;	DB 1; Length 26;
	Best Local Similarity	88.5%	Pred. No. 3.7e-09;	
	Matches 23; Conservative	0;	Mismatches 3;	Indels 0; Gaps 0;

DB 1 CLSPGSSCSTYNCRSCNPSYKRC 26

RESULT 2  
CX06\_CONGE STANDARD; PRT; 73 AA.  
AC P01522;  
DT 21-JUL-1986 (Rel. 01, Created)  
DT 01-FEB-1994 (Rel. 28, Last sequence update)  
DT 25-OCT-2004 (Rel. 45, Last annotation update)  
DE Omega-conotoxin GVIA precursor (Shaker peptide) (SNR-124) [Contains:  
Omega-conotoxin GVIB; Omega-conotoxin GVIC].  
OS *Conus geographus* (Geography cone).  
OC *Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;*  
OC *Apogastropoda; Caenogastropoda; Sorbeconcha; Hyposogastropoda;*  
OC *Neogastropoda; Conoidea; Conidae; Conus.*  
NCBI\_Acid=6491;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE=93069266; PubMed=1440648; DOI=10.1016/0041-0101(92)90056-B;  
RA Collidge C.J., Humpage J.P., Imperial J.S., Hillyard D.R.;  
RT "Precursor structure of omega-conotoxin GVIA determined from a cDNA  
RT clone.";  
RT Toxicon 30:1111-1116 (1992).  
RN [2]  
RP SEQUENCE OF 46-72 (GVIA).  
RX MEDLINE=85072796; PubMed=6509012;  
RA Olivera B.M., McIntosh J.M., Cruz L.J., Luque F.A., Gray W.R.;  
RT "Purification and sequence of a presynaptic peptide toxin from *Conus*  
RT *geographus* venom.";  
RT Biochemistry 23:5087-5090 (1984).  
RN [3]  
RP SEQUENCE OF 46-73 (GVIB AND GVIC).  
RX MEDLINE=86070213; PubMed=4071055;  
RA Olivera B.M., Gray W.R., Zeikus R.D., McIntosh J.M., Varga J.,  
RA Rivier J.E., de Santos V., Cruz L.J.;  
RT "Peptide neurotoxins from fish-hunting cone snails.";  
RT Science 230:1338-1343 (1985).  
RN [4]  
RP SYNTHESIS OF GVIA, AND DISULFIDE BONDS.  
RX MEDLINE=87049928; PubMed=3779030;  
RA Nishuchi Y., Kumagaya K., Noda Y., Watanabe T.X., Sakakibara S.;  
RT "Synthesis and second-structure determination of omega-conotoxin  
RT GVIA: a 27-peptide with three intramolecular disulfide bonds.";  
RT Biopolymers 25:861-866 (1986).  
RN [5]  
RP MUTAGENESIS OF LYS-47, ARG-62, LYS-69 AND ARG-70.  
RX MEDLINE=93356803; PubMed=8394704;  
RA Sato K., Park N.G., Kohno T., Maeda T., Kim J.I., Kato R.,  
RA Takahashi M.;  
RT "Role of basic residues for the binding of omega-conotoxin GVIA to N-  
RT type calcium channels.";  
RT Biochem. Biophys. Res. Commun. 194:1292-1296 (1993).  
RN [6]  
RP MUTAGENESIS OF TYR-58.  
RX MEDLINE=95014108; PubMed=7929033;  
RA Kim J.I., Takahashi M., Ogura A., Kohno T., Kudo Y., Sato K.;  
RT "Hydroxyl group of Tyr13 is essential for the activity of omega-  
RT conotoxin GVIA, a peptide toxin for N-type calcium channel.";  
RT J. Biol. Chem. 269:23876-23878 (1994).  
RN [7]  
RP SYNTHESIS, MUTAGENESIS OF LYS-47, TYR-58, ARG-62, TYR-67 AND LYS-69,  
RP AND STRUCTURE BY NMR.  
RX MEDLINE=97277345; PubMed=915267; DOI=10.1074/jbc.272.18.12014;  
RA Lew M.J., Flinn J.P., Paliaghy P.K., Murphy R., Whorlow S.L.,  
RA Wright C.B., Norton R.S., Angus J.A.;  
RT "Structure-function relationships of omega-conotoxin GVIA. Synthesis,  
RT structure, calcium channel binding, and functional assay of alanine-  
RT substituted analogues.";  
RT J. Biol. Chem. 272:12014-12023 (1997).  
RN [8]  
RP STRUCTURE BY NMR OF GVIA.

RX MEDLINE=93282829; PubMed=8343203;  
RA Sevilla P., Bruix M., Santoro J., Gago F., Garcia A.G., Rico M.;  
RT "Three-dimensional structure of omega-conotoxin GVIA determined by 1H  
RT NMR.";  
RN [9]  
RP Biochem. Biophys. Res. Commun. 192:1238-1244 (1993).  
RN [10]  
RP STRUCTURE BY NMR OF GVIA.  
RX MEDLINE=93332945; PubMed=8338937;  
RA Davis J.H., Bradley E.K., Miljanich G.P., Nadaedi L., Ramchandran J.,  
RA Basu V.J.;  
RT "Solution structure of omega-conotoxin GVIA using 2-D NMR spectroscopy  
RT and relaxation matrix analysis.";  
RT Biochemistry 32:7396-7405 (1993).  
RN [11]  
RP STRUCTURE BY NMR OF GVIA.  
RX MEDLINE=94047089; PubMed=8230223;  
RA Paliaghy P.K., Duggan B.M., Pennington M.W., Norton R.S.;  
RT "Three-dimensional structure in solution of the calcium channel  
RT blocker omega-conotoxin.";  
RT J. Mol. Biol. 234:405-420 (1993).  
RN [12]  
RP STRUCTURE BY NMR OF GVIA.  
RX MEDLINE=94073074; PubMed=8251934;  
RA Skalicky J.J., Metzler W.J., Ciesla D.J., Galdea A., Pardi A.;  
RT "Solution structure of the calcium channel antagonist omega-conotoxin  
RT GVIA.";  
RT Protein Sci. 2:1591-1603 (1993).  
RN [13]  
RP STRUCTURE BY NMR OF GVIA.  
RX MEDLINE=99248506; PubMed=10231724;  
RA Paliaghy P.K., Norton R.S.;  
RT "Refined solution structure of omega-conotoxin GVIA: implications for  
RT calcium channel binding.";  
RT J. Pept. Res. 53:343-351 (1999).  
RN [14]  
RP REVIEW.  
RX MEDLINE=20283152; PubMed=10822250;  
DOI=10.1002/(SICI)1099-1352(200003/04)13:2<5::AID-JMR488>3.0.CO;2-O;  
RA Nielsen K.J., Schroeder T., Lewis R.;  
RT "Structure-activity relationships of omega-conotoxins at N-type  
RT voltage-sensitive calcium channels.";  
RT J. Mol. Recognit. 13:55-70 (2000).  
RN [15]  
RP FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind  
CC and block voltage-sensitive calcium channels (VSCC).  
CC - SUBCELLULAR LOCATION: Secreted.  
CC - TISSUE SPECIFICITY: Expressed by the venom duct.  
CC - SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type  
CC family.  
CC -----  
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CC -----  
DR EMBL: M84612; AAA81590.1; -  
DR PIR: A44006; NTKN6G.  
DR PDB: 1OMC; NMR; @=46-73.  
DR PDB: 2CCO; NMR; @=46-73.  
DR InterPro: IPR004214; Conotoxin.  
DR Pfam: PF02950; Conotoxin; 1.  
KW 3D-structure; Amidation; Calcium channel inhibitor;  
KW Direct protein sequencing; Hydroxylation; Ionic channel inhibitor;  
KW Neurotoxin; Presynaptic neurotoxin; Signal; Toxin.  
FT STGNLU 1 22 Potential.  
FT PROPEP 23 45  
FT PEPTIDE 46 73 Omega-conotoxin GVIB.  
FT PEPTIDE 46 72 Omega-conotoxin GVIA.  
FT MOD\_RBS 49 71 4-hydroxyproline.  
FT MOD\_RBS 55 55 4-hydroxyproline.



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FT MOD_RES 66 66 4-hydroxyproline.
FT MOD_RES 72 72 Tyrosine amide (G-73 provides amide
FT DISULFID 46 61 group) (in omega-conotoxin GVIA).
FT DISULFID 53 64
FT DISULFID 60 71
FT MUTAGEN 47 47 K->A: Strong decrease in activity.
FT MUTAGEN 58 58 Y->A: Strong decrease in activity.
FT MUTAGEN 58 58 Y->F: Decrease in affinity.
FT MUTAGEN 62 62 R->A: Decrease in potency, but not in
FT MUTAGEN 67 67 affinity.
FT MUTAGEN 69 69 Y->A: Decrease in potency, but not in
FT MUTAGEN 69 69 K->A: Decrease in potency, but not in
FT MUTAGEN 70 70 affinity.
FT STRAND 47 47 R->A: No change in activity.
FT STRAND 49 50
FT STRAND 52 52
FT STRAND 55 58
FT STRAND 60 60
FT STRAND 64 65
FT TURN 66 69
FT TURN 70 71
SQ SEQUENCE 73 AA; 7851 MW; 51A8C8FA630F7175 CRC64;

Query Match 80.1%; Score 117; DB 1; Length 73;
Best Local Similarity 73.1%; Pred. No. 5.4e-07;
Matches 19; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRSCKNXYGRKC 26
Db 46 CKSPGSSCPTSYNCCRSCKNXYGRKC 71

RESULT 3
CX06_CONRA STANDARD; PRT; 27 AA.
AC PS8914;
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Omega-conotoxin RYIA.
OS Conus radiatus (Rapa cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxId=61198;
RN [1]
RP SEQUENCE.
RA Miljanich G.P., Bitner R.S., Bowersox S.S., Fox J.A., Valentino K.L.,
RA Yamashita D.H.;
RT "Method of treating ischemia-related neuronal damage.";
RT Patent number US5051403, 24-SEP-1991.
RL
CC -1- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC -1- and block voltage-sensitive calcium channels (VSCC).
CC -1- SUBCELLULAR LOCATION: Secreted.
CC -1- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -1- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type
CC family.
KW Calcium channel inhibitor; Direct protein sequencing; Hydroxylation;
KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Toxin.
FT DISULFID 1 16
FT DISULFID 8 19
FT DISULFID 15 26
FT MOD_RES 4 4 Hydroxyproline.
FT MOD_RES 7 7 Hydroxyproline.
FT MOD_RES 7 7 F554C1F8A01A88AF CRC64;
SQ SEQUENCE 27 AA; 2887 MW;

Query Match 63.0%; Score 92; DB 1; Length 27;
Best Local Similarity 53.8%; Pred. No. 0.00023;
Matches 14; Conservative 3; Mismatches 9; Indels 0; Gaps 0;

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QY 1 CLSXGSSCSXTSYNCCRSCKNXYGRKC 26
Db 1 CKSPGSSCPTSYNCCRSCKNXYGRKC 26

RESULT 4
CX07_CONGE STANDARD; PRT; 29 AA.
AC P05483;
DT 01-NOV-1988 (Rel. 09, Created)
DT 01-NOV-1988 (Rel. 09, Last sequence update)
DT 25-OCT-2004 (Rel. 45, Last annotation update)
DE Omega-conotoxin GVIA/GVIIb (Shaker peptides GVIIa/GVIIb) (SNK-178).
OS Conus geographus (Geography cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxId=6491;
RN [1]
RP SEQUENCE.
RX MEDLINE=6070213; PubMed=4071055;
RA Olivera B.M., Gray W.R., Zeikus R.D., McIntosh J.M., Varga J.,
RA Rivier J.E., de Santos V., Cruz L.U.;
RT "Peptide neurotoxins from fish-hunting cone snails.";
RL Science 230:1338-1343(1985).
CC -1- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC -1- and block voltage-sensitive calcium channels (VSCC).
CC -1- SUBCELLULAR LOCATION: Secreted.
CC -1- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -1- MISCELLANEOUS: The sequence shown is that of conotoxin GVIIA.
CC -1- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type
CC family.
DR PIR; A43620; A43620.
DR PIR; B43620; B43620.
KW Calcium channel inhibitor; Direct protein sequencing; Hydroxylation;
KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Toxin.
FT MOD_RES 4 4
FT MOD_RES 7 7 4-hydroxyproline.
FT DISULFID 1 16
FT DISULFID 8 19
FT DISULFID 15 26
FT VARIANT 21 21 L->S (in GVIIb).
SQ SEQUENCE 29 AA; 3290 MW; 57307C69583F81B7 CRC64;

Query Match 54.1%; Score 79; DB 1; Length 29;
Best Local Similarity 51.9%; Pred. No. 0.0087;
Matches 14; Conservative 2; Mismatches 11; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRSCKNXYGRKC 27
Db 1 CKSPGTPCSKGRMDCCITCLLYNKCR 27

RESULT 5
CVPS_PIMHY STANDARD; PRT; 115 AA.
AC Q8T0W1;
DT 25-OCT-2004 (Rel. 45, Created)
DT 25-OCT-2004 (Rel. 45, Last sequence update)
DT 25-OCT-2004 (Rel. 45, Last annotation update)
DE Cysteine-rich venom protein 5 precursor.
GN Name=cvps;
OS Pimpla hypochondriaca (Parasitoid wasp).
OC Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
OC Neoptera; Endopterygota; Hymenoptera; Apocrita; Ichneumonidae;
OC Ichneumonidae; Pimplinae; Pimplini; Pimpla.
OX NCBI_TaxId=135724;
RN [1]
RP SEQUENCE FROM N.A., AND SEQUENCE OF 23-27.
RC TISSUE=Venom, and Venom gland;
RX PubMed=15147757; DOI=10.1016/j.jmb.2004.03.003;
RA Parkinson N.M., Conyers C., Keen J., Macnicoll A., Smith I.,
RA Audsley N., Weaver R.;

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"Towards a comprehensive view of the primary structure of venom proteins from the parasitoid wasp *Pimpla hypochondriaca*.";  
 RT Insect Biochem. Mol. Biol. 34:565-571(2004).  
 CC -1- SUBCELLULAR LOCATION: Secreted.  
 CC -1- TISSUE SPECIFICITY: Expressed by the venom gland.  
 CC -----  
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 CC -----  
 DR EMBL; AJ438966; CAD27741.1; -  
 DR KW Direct protein sequencing; Signal.  
 FT SIGNAL 1 22  
 FT CHAIN 115 AA; 12678 MW; 4AB954F302C60118 CRC64;  
 SQ SEQUENCE

Query Match 47.3%; Score 69; DB 1; Length 115;  
 Best Local Similarity 42.3%; Pred. No. 0.42;  
 Matches 11; Conservative 4; Mismatches 11; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRSQNXYSRKC 26  
 DB 26 CSMGASCOIGSNATCCGVNHTLRG 51

RESULT 6  
 ID Q9NCU8 PRELIMINARY; PRT; 72 AA.  
 AC Q9NCU8;  
 DT 01-OCT-2000 (T-EMBLrel. 15, Created)  
 DT 01-OCT-2000 (T-EMBLrel. 15, Last sequence update)  
 DT 01-OCT-2003 (T-EMBLrel. 25, Last annotation update)  
 DE Four-loop conotoxin (Fragment).  
 OS Conus striatus (Striated cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 NC NCB1\_TaxID=6493;  
 RX NCB1\_TaxID=6493;  
 RN (1)  
 RP SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (Aug-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174248; AAF89912.1; -  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 FT NON TER 1  
 FT SEQUENCE 72 AA; 7763 MW; 9FA4FB1B6624CF71 CRC64;

Query Match 46.6%; Score 68; DB 2; Length 72;  
 Best Local Similarity 38.5%; Pred. No. 0.38;  
 Matches 10; Conservative 4; Mismatches 12; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRSQNXYSRKC 26  
 DB 41 CMEAGSYCGSTRICCGYCAVFGKCC 66

RESULT 7  
 ID Q9NCU9 PRELIMINARY; PRT; 72 AA.  
 AC Q9NCU9;  
 DT 01-OCT-2000 (T-EMBLrel. 15, Created)  
 DT 01-OCT-2000 (T-EMBLrel. 15, Last sequence update)  
 DT 01-OCT-2003 (T-EMBLrel. 25, Last annotation update)  
 DE Four-loop conotoxin (Fragment).  
 OS Conus striatus (Striated cone).

Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 NC NCB1\_TaxID=6493;  
 RN (1)  
 RP SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (Aug-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174247; AAF89911.1; -  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 DR GO; GO:0009405; P:pathogenesis; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 FT NON TER 1  
 FT SEQUENCE 72 AA; 7773 MW; 9FA708DAB924CF71 CRC64;

Query Match 46.6%; Score 68; DB 2; Length 72;  
 Best Local Similarity 38.5%; Pred. No. 0.38;  
 Matches 10; Conservative 4; Mismatches 12; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRSQNXYSRKC 26  
 DB 41 CMEAGSYCGSTRICCGYCAVFGKCC 66

RESULT 8  
 ID CXOS CONST STANDARD; PRT; 77 AA.  
 AC Q9XZF4;  
 DT 16-OCT-2001 (Rel. 40, Created)  
 DT 16-OCT-2001 (Rel. 40, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Omega-type conotoxin S05 precursor.  
 GN Name-S05;  
 OS Conus striatus (Striated cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 NC NCB1\_TaxID=6493;  
 RN (1)  
 RP SEQUENCE FROM N.A.  
 RX TISSUE=Venom duct;  
 RX MEDLINE=20037955; PubMed=10573284; DOI=10.1016/S0196-9781(99)00116-3;  
 RA Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-F.;  
 RL "Conopeptides from *Conus striatus* and *Conus textile* by cDNA cloning.";  
 RL Peptides 20:1139-1144(1999).  
 CC -1- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind  
 CC and block voltage-sensitive calcium channels (VSCC) (By  
 CC similarity).  
 CC -1- SUBCELLULAR LOCATION: Secreted (By similarity).  
 CC -1- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -1- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type  
 CC family.  
 CC -----  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on its  
 CC use by non-profit institutions as long as its content is in no way  
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 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 DR EMBL; AF146350; AAD31910.1; -  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 KW Calcium channel inhibitor; Ionic channel inhibitor; Neurotoxin;  
 KM Presynaptic neurotoxin; Signal; Toxin.  
 FT SIGNAL 1 22  
 FT PROPEP 23 42  
 FT PEPTIDE 43 77  
 FT DISULFID 46 61  
 FT DISULFID 53 64  
 FT By similarity.  
 FT By similarity.  
 FT By similarity.  
 FT By similarity.

FP	DISULFID	60	71	BY similarity.
SQ	SEQUENCE	77 AA;	8372 MW;	0FB5P480C7709CE9 CRC64;
QY	Query Match		46.6%;	Score 68; DB 1; Length 77;
	Best Local Similarity		38.5%;	Pred. No. 0.4;
Matches	10; Conservative		4; Mismatches	12; Indels 0; Gaps 0;
Db	1 CLSXGSSCSXTSYNCCRSCNXYSRKC 26			
	46 CMEAGSYCGSTTRICCGYCAVFGKXC 71			
RESULT 9				
Q9N6Z5	PRELIMINARY;	PRT;	66 AA.	
ID Q9N6Z5				
AC Q9N6Z5;				
DT 01-OCT-2000 (TREMBlrel. 15, Created)				
DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)				
DT 05-JUN-2004 (TREMBlrel. 27, last annotation update)				
DE Four-loop conotoxin (Fragment).				
OS Conus catus (Cat cone).				
OC Eukaryote; Metazoa; Mollusca; Gastropoda; Orthogastropoda;				
CC Apogastropoda; Caenogastropoda; Sorboconcha; Hypogastropoda;				
OC Neogastropoda; Conoidea; Conidae; Conus.				
OX NCBI_Taxid=101291;				
RN [1]				
RP SEQUENCE FROM N.A.				
RD Duda T.F., Palumbi S.R.;				
RL Submitted (AUG-1999) to the EMBL/Genbank/DBJ databases.				
DR EMBL; AF174228; AAF89892.1; -				
DR EMBL; AF174222; AAF89886.1; -				
DR EMBL; AF174224; AAF89888.1; -				
DR EMBL; AF174225; AAF89889.1; -				
DR EMBL; AF174221; AAF89885.1; -				
DR HSSP; P05484; IPEO.				
DR GO; GO:0005576; C:extracellular; IEA.				
DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.				
DR GO; GO:0009405; P:pathogenesis; IEA.				
DR InterPro; IPRO04214; Conotoxin.				
DR Pfam; PF02950; Conotoxin; 1.				
FR NON TER				
SQ SEQUENCE 66 AA; 7056 MW; EA1133BA6968B7DA CRC64;				
Query Match		46.2%;	Score 67.5; DB 2; Length 66;	
Best Local Similarity		51.9%;	Pred. No. 0.4;	
Matches	14; Conservative		3; Mismatches	7; Indels 3; Gaps 2;
QY 1 CLSXGSSCSXTSYNCCR-SCNXYSRKC 26				
Db 41 CKSTGASCRFTSYDCGTGSCR--SGRC 65				
RESULT 10				
Q9N6Z8	PRELIMINARY;	PRT;	66 AA.	
ID Q9N6Z8				
AC Q9N6Z8;				
DT 01-OCT-2000 (TREMBlrel. 15, Created)				
DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)				
DT 05-JUN-2004 (TREMBlrel. 27, last annotation update)				
DE Four-loop conotoxin (Fragment).				
OS Conus catus (Cat cone).				
OC Eukaryote; Metazoa; Mollusca; Gastropoda; Orthogastropoda;				
CC Apogastropoda; Caenogastropoda; Sorboconcha; Hypogastropoda;				
OC Neogastropoda; Conoidea; Conidae; Conus.				
OX NCBI_Taxid=101291;				
RN [1]				
RP SEQUENCE FROM N.A.				
RD Duda T.F., Palumbi S.R.;				
RL Submitted (AUG-1999) to the EMBL/Genbank/DBJ databases.				
DR EMBL; AF174229; AAF89893.1; -				
DR EMBL; AF174226; AAF89890.1; -				
DR HSSP; P05484; IPEO.				
DR GO; GO:0005576; C:extracellular; IEA.				

Query Match	Best Local Similarity	Score	DB 2;	Length	66;
Matches 14; Conservative	46.2%;	51.9%;	3; Mismatches	7; Indels	3; Gaps
1 CLSXGSSCSXTSYNCCR-SCNXYSRKC 26					
41 CKXGKSCSRYSYDCTGSCRC-5GRC 65					
Query Match	Best Local Similarity	Score	DB 2;	Length	66;
Matches 14; Conservative	46.2%;	51.9%;	3; Mismatches	7; Indels	3; Gaps
1 CLSXGSSCSXTSYNCCR-SCNXYSRKC 26					
41 CKXGKSCSRYSYDCTGSCRC-5GRC 65					
Query Match	Best Local Similarity	Score	DB 2;	Length	66;
Matches 14; Conservative	46.2%;	51.9%;	3; Mismatches	7; Indels	3; Gaps
1 CLSXGSSCSXTSYNCCR-SCNXYSRKC 26					
41 CKXGKSCSRYSYDCTGSCRC-5GRC 65					

DR GO; GO:0008205; P:ion channel inhibitor activity; IEA.  
DR GO; GO:0009455; P:pathogenesis; IEA.  
DR InterPro; IPR004214; C:Conotoxin.  
DR Pfam; PF02950; C:Conotoxin; 1.  
FT NLM TER 1 1  
SQ SEQUENCE 66 AA; 6951 MW; 0D9868C0A7A1A39F CRC64;

Query Match	46.2%	Score 67.5;	DB 2;	length 66;
Best Local Similarity	51.9%	Pred. No. 0.4;		
Matches	14;	Conservative	2;	Mismatches 8; Indels 3; Gaps 2
QY	1	CLXGSSGCSXSYNCCR--SCNXYSPKC	26	
	:	:		
Db	41	CKAAKSCSRAINCTGSCR--SGKC	65	

### RESULT 13

ID	Q9NCV0:	PRELIMINARY;	PRT;	66 AA.
AC	01-OCT-2000 (TREMBLE1. 15, Created)			
DT	01-OCT-2000 (TREMBLE1. 15, last sequence update)			
DT	01-OCT-2003 (TREMBLE1. 25, last annotation update)			
DE	Four-loop conotoxin (Fragment).			
OS	Conus striatus (Striated cone).			
OC	Euthaliota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;			
OC	Apogastropoda; Caenogastropoda; Sorbecomcha; Hypogastropoda;			
OC	Neogastropoda; Conoidea; Conidae; Conus.			
OX	NCBI_TaxID=6493;			

	Query March	46.2%	Pred 67.5;	DB 2;	Length 66;
	Best Local Similarity	51.9%;	Pred No 0.4;		
	Matches 14;	Conservative 2;	Mismatches 8;	Indels 3;	Gaps 2
OY	1	CLSKGSGCSTXSYNCCR--SCNNYSKRC	26		
	:	: ::   :			
Dd	41	CRAAGKSSRIAYNCTTGSRCR--SSKNC	65		

## RESULT 14

ID	Q9NCV4	PRELIMINARY;	PRT;	66 AA.
AC	Q9NCV4;			
DT	01-OCT-2000	(TREMBLrel. 15, Created)		
DT	01-OCT-2000	(TREMBLrel. 15, last sequence update)		
DT	01-OCT-2003	(TREMBLrel. 25, last annotation update)		
DE	Four-Loop conotoxin (Fragment) .			
OS	Conus striatus (Striped cone) .			
OC	Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;			
OC	Apogastropoda; Caenogastropoda; Sorbecomha; Hyposogastropoda			
OC	Neogastropoda; Conoidea; Conidae; Conus.			
OX	NCBI_TaxId=6493;			

DR GO:GO:0009405; P:patogenesis; IEA.  
DR InterPro:IPR004214; Concoxin.  
DR Pfam: PF02950; Conotoxin; 1.  
FT NON\_TER 1 1  
SQ SEQUENCE 66 AA; 6980 MW; 286F491D7CA7DA05 CRC64

Query	1	CTATGGGCGCTATGCTCCG-SCATATGATC	26
	:		
Db	41	CTAAGGCGCTATATGCTCCG-SCATC	65
Matches	14;	Conservative	2; Mismatches 8; Indels 3; Gaps 2
Query Match	56.2%	Score	67.5; DB 2; Length 66;
Best Local Similarity	51.9%	Pred.	No. 0.4;

## RESULT 15

ID	Q9NCW2	PRELIMINARY;	PRT;	66 AA.
AC	Q9NCW2;			
DT	01-OCT-2000 (TREMBLrel. 15, Created)			
DT	01-OCT-2000 (TREMBLrel. 15, Last sequence update)			
DT	01-OCT-2003 (TREMBLrel. 25, Last annotation update)			
DE	Four-loop conotoxin (Fragment).			
OS	Conus catus (Cat cone).			
OC	Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;			
OC	Apogastropoda; Caenogastropoda; Sorboconcha; Hypsogastropoda;			
OC	Neogastropoda; Comidae; Conidae; Conus.			
OX	NCBI_TaxID=101291;			

Query Match	Similarity	Score	DB	Length
Best Local	51.9%	Pred. No. 0.4		
Matches	14	Conservative	3	Mismatches 7; Indels 3; Gaps 2

  

Qy	1	CLSKGSSCSKXTSYNCCR-SCNXYSRKC	26
Db	41	CKSTGASCRRTSYDOCTGSCCR--SGRC	65

Search completed: March 23, 2005, 00:16:41  
Job time : 72.0891 secs

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 28, 2005, 16:30:33 ; Search time 34.6667 seconds  
(without alignments)  
145.035 Million cell updates/sec

Title: US-09-787-082A-19

Sequence: 1 ECCNPACGRHSC 13

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 50 summaries

Database : A\_Geneseq\_16Dec04:\*  
1: geneseqp1980s:\*  
2: geneseqp1990s:\*  
3: geneseqp2000s:\*  
4: geneseqp2001s:\*  
5: geneseqp2002s:\*  
6: geneseqp2003as:\*  
7: geneseqp2003bs:\*  
8: geneseqp2004s:\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	88	100.0	13	1 AAP40326	AAP40326 Sequence
2	88	100.0	13	2 AAR75264	Aar75264 Alpha-con
3	88	100.0	13	2 AAW14604	Aaw14604 Synthetic
4	88	100.0	13	2 AAW12726	Aaw12726 Alpha-con
5	88	100.0	13	4 AAB92210	Aab92210 Toxin pep
6	88	100.0	13	7 ADJ71770	Adj71770 Alpha-con
7	88	100.0	13	8 ADH23228	Adh23228 Antiviral
8	88	100.0	15	1 AAP40328	Aap40328 Sequence
9	88	100.0	15	2 AAR75265	Aar75265 Alpha-con
10	88	100.0	15	2 AAW12727	Aaw12727 Alpha-con
11	88	100.0	59	3 AAB15129	Aab15129 Alpha-con
12	88	100.0	59	3 AAB15132	Aab15132 Alpha-con
13	88	100.0	59	3 AAB15138	Aab15138 Alpha-con
14	88	100.0	59	5 AAE19734	Aae19734 Conus geo
15	88	100.0	59	5 AAE19725	Aae19725 Conus geo
16	88	100.0	59	5 AAE19728	Aae19728 Conus rad
17	88	100.0	64	2 AAR38801	Aar38801 Conotoxin
18	88	100.0	64	2 AAR75296	Aar75296 Alpha-con
19	88	100.0	64	2 AAW12759	Aaw12759 A-11neage
20	84	95.5	13	5 AAE19779	Aae19779 GI alpha-
21	84	95.5	13	5 AABG9809	Abg9809 Conus sp
22	84	95.5	59	5 AABG9619	Abg9619 Conus sp
23	83	94.3	13	5 AAE19780	Aae19780 GI alpha-
24	83	94.3	15	7 ADJ71772	Adj71772 Exemplary
25	80	90.9	13	5 AABG9808	Abg9808 Conus sp

26	80	90.9	37	5 AABG9617	Abg9617 Conus sp
27	76	86.4	13	1 AAP40329	Aap40329 Sequence
28	76	86.4	13	2 AAR75266	Aar75266 Alpha-con
29	76	86.4	13	2 AAW12728	Aaw12728 Alpha-con
30	76	86.4	59	3 AAB15146	Aab15146 Alpha-con
31	76	86.4	59	3 AAE19742	Aae19742 Conus rad
32	75	85.2	15	7 ADJ71776	Adj71776 Exemplary
33	72	81.8	13	5 AAE19770	Aae19770 MI alpha-
34	72	81.8	14	5 AAE19765	Aae19765 MI alpha-
35	72	81.8	14	5 AAE19774	Aae19774 MI alpha-
36	71	80.7	37	3 AAB15148	Aab15148 Alpha-con
37	71	80.7	37	5 AAE19744	Aae19744 Conus ach
38	71	80.7	59	3 AAB21447	Aab21447 Cone snail
39	71	80.7	59	3 AAB15143	Aab15143 Alpha-con
40	71	80.7	59	3 AAB15142	Aab15142 Alpha-con
41	71	80.7	59	3 AAB15131	Aab15131 Alpha-con
42	71	80.7	59	3 AAB15141	Aab15141 Alpha-con
43	71	80.7	59	3 AAB15133	Aab15133 Alpha-con
44	71	80.7	59	3 AAB15144	Aab15144 Alpha-con
45	71	80.7	59	5 AAE19737	Aae19737 Conus ach
46	71	80.7	59	5 AAE19740	Aae19740 Conus mon
47	71	80.7	59	5 AAE19727	Aae19727 Conus rad
48	71	80.7	59	5 AAE19738	Aae19738 Conus bet
49	71	80.7	59	5 AAE19739	Aae19739 Conus con
50	71	80.7	59	5 AAE19729	Aae19729 Conus rad

## ALIGNMENTS

RESULT 1  
ID AAP40326 standard; peptide; 13 AA.  
XX  
XX AAP40326;  
XX  
AC 16-AUG-2002 (revised)  
XX  
DT 30-JAN-1992 (first entry)  
XX  
XX Sequence of conotoxin peptide GI.  
XX  
XX Acetylcholine receptor; reversible immobilisation;  
XX  
XX synaptic transmission inhibitor.  
XX  
XX Conus geographus.  
OS  
OS Synthetic.  
XX  
XX Key Location/Qualifiers  
XX Disulfide-bond 2..7  
XX Modified-site 3  
XX Modified-site 13 /label= Cys-S(acetamido-methyl)  
XX /label= Cys-S(acetamido-methyl)  
XX /note= "bonded to NH2"  
XX  
XX US4447356-A.  
XX  
XX 08-MAY-1984.  
XX  
XX 04-JUN-1982; 82US-00385125.  
XX  
XX 17-APR-1981; 81US-00255237.  
XX  
XX (OLIV) OLIVERA B M.  
XX  
XX OLIVERA BM, Cruz LJ, Gray WR, Rivier JEF;  
XX WPI, 1984-133757/21.  
XX  
XX Conotoxin peptide(s) - useful for reversible immobilisation of muscles  
XX and for detecting acetylcholine receptors.  
XX  
XX Claim 3; Col 13-14; 10pp; English.  
PS

XX The peptides of the invention are potent inhibitors of synaptic  
 CC transmission at the neuromuscular junction while lacking inhibition of  
 CC either nerve or muscle action potential propagation. Their action is  
 CC reversibly reversible on dilution or removal of the peptide from the  
 CC affected muscle. The peptides are useful for reversible immobilization of  
 CC a muscle or gp. of muscles in man and other vertebrates and they can be  
 CC used for detection and measurement of acetylcholine receptors. (Updated  
 CC on 16-AUG-2002 to add missing OS field.)

XX Sequence 13 AA;

Query Match 100.0%; Score 88; DB 1; Length 13;

Best Local Similarity 100.0%; Pred. No. 0.00013; Mismatches 0; Indels 0; Gaps 0;

OY 1 ECCNPACGRHYSK 13  
 DB 1 ECCNPACGRHYSK 13

RESULT 2  
 AAR75264  
 ID AAR75264 standard; peptide; 13 AA.

XX AAR75264;

XX 21-DEC-1995 (first entry)

XX Alpha-conotoxin GI peptide.

XX Alpha-conotoxin; neuromuscular; synapse; signal transmission.

XX Conus geographus.

XX Location/Qualifiers

FT Peptide 1.13 /note="core sequence contains 2 highly conserved

FT disulphide bonds; the precise locations are not given in

FT Modified-site 13 the specification"

XX /note="amided"

XX WO9511256-A1.

XX 27-APR-1995.

XX 19-OCT-1994; 94WO-US011927.

XX 19-OCT-1993; 93US-00137800.

XX (UTAH ) UNIV UTAH RES FOUND.

XX Oliveira BM, Cruz LJ, Hillyard DR, McIntosh JM, Santos AD;

XX WPI; 1995-170189/22.

XX New A-lineage conotoxin peptide(s) - which inhibit synaptic transmission

XX at the neuromuscular junction or are active against potassium or sodium

XX channels.

XX Disclosure; Page 4; 66pp; English.

XX The kappa-conotoxin, alpha conotoxin and alpha-like conotoxin peptides

XX all belong to a group of peptides known as the A-lineage conotoxin

XX peptides. The A lineage conotoxin peptides have a wide variety of

XX pharmacological uses. The A-lineage conotoxin peptides claimed (AAR75264-

XX R75263) are useful for the inhibition of synaptic transmission at

XX neuromuscular junctions by blocking nicotinic acetyl choline receptors

Query Match 100.0%; Score 88; DB 2; Length 13;  
 Best Local Similarity 100.0%; Pred. No. 0.00013; Mismatches 0; Indels 0; Gaps 0;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 ECCNPACGRHYSK 13  
 DB 1 ECCNPACGRHYSK 13

RESULT 3  
 AAM14604  
 ID AAM14604 standard; peptide; 13 AA.

XX AAM14604;

XX 25-MAR-2003 (revised)

XX 11-DEC-1997 (first entry)

XX Synthetic conotoxin GI peptide.

XX Fusion protein; cleavage; eukaryote; enzyme; antibody; antigen;

XX antigenic variation; cell substrate adhesion.

XX Synthetic.

XX US5620923-A.

XX 15-APR-1997.

XX 03-APR-1992; 92US-00862737.

XX 12-OCT-1989; 89US-00420544.

XX (UTAH ) UNIV UTAH.

XX Rote KV, Wilkinson KD, Rechsteiner MC, Yoo Y;

XX WPI; 1997-235197/21.

XX Production of short peptide(s) - as ubiquitin fusion proteins for

XX cleavage by eukaryotic enzyme.

XX Disclosure; Col 8; 7pp; English.

XX A method has been developed for producing peptides comprising 2-40 amino

XX acid residues, where the N-terminal amino acid is not proline. The method

XX involves: (a) cloning a peptide-encoding synthetic oligonucleotide

XX downstream of a ubiquitin gene in a plasmid to obtain a plasmid encoding

XX a ubiquitin-peptide fusion protein; (b) transforming a bacterium with the

XX plasmid and inducing expression of the fusion protein; (c) recovering the

XX fusion protein from the bacterial cells; (d) subjecting the fusion

XX protein to the action of a eukaryotic enzyme that specifically cleaves

XX the amide bond between the C-terminal glycine of the ubiquitin and the N-

XX terminal amino acid of the peptide; and (e) separating the peptide from

XX free ubiquitin and any other proteins present. The present sequence

XX represents an amino acid sequence of a conotoxin GI peptide, prepared as

XX an ubiquitin-carboxyl terminal extended peptide to show that other

XX peptides may be synthesized by this method. Synthetic peptides are useful

XX as research tools, to generate antibodies, for assessing antigenic

XX variation, for studying antigen presentation, to disrupt cell-substrate

XX adhesion, to target proteins to specific cellular compartments, as model

XX systems in studies on the structure, folding or associations of proteins,

XX and for therapeutic or pharmacological purposes. (Updated on 25-MAR-2003

XX to correct PF field.)

XX Sequence 13 AA;

Query Match 100.0%; Score 88; DB 2; Length 13;

Best Local Similarity 100.0%; Pred. No. 0.00013; Mismatches 0; Indels 0; Gaps 0;

Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 ECCNPACGRHYSK 13

DB 1 ECCNPACGRHYSC 13

RESULT 4  
AAW12726  
ID AAW12726 standard; peptide; 13 AA.  
XX  
AC AAW12726;  
XX  
DT 25-MAR-2003 (revised)  
DT 16-APR-1997 (first entry)  
XX  
DE Alpha-conotoxin peptide GI.  
XX  
XX Polymerase chain reaction; PCR; primer; amplify; conotoxin; Conus;  
KW inhibitor; synaptic transmission; neuromuscular junction; sodium channel;  
KW nicotinic acetylcholine receptor; potassium channel; muscle relaxant;  
KW myasthenia gravis; small cell lung cancer; therapy.  
XX  
OS Conus geographus.  
XX  
FH Key Location/Qualifiers  
FT Modified-site 13 /note="amidated"  
FT  
XX  
PN US5589340-A.  
XX  
PD 31-DEC-1996.  
XX  
PF 07-JUN-1995; 95US-00477283.  
XX  
PR 29-JUN-1993; 93US-00084848.  
PR 19-OCT-1993; 93US-00137800.  
XX  
PA (UTAH) UNIV UTAH RES FOUND.  
XX  
PI Santos AD, Hilliard DR, McIntosh JM, Olivera BM, Cruz LJ;  
DR WPI; 1997-076840/07.  
XX  
XX Identifying nucleic acid encoding A-lineage conotoxin peptide(s) by  
PT amplification - uses primers corresponding to conserved regions in the  
PT signal sequence and 3'-untranslated regions, useful e.g. in treatment of  
PT small cell lung cancer.  
XX  
PS Disclosure; Col 3; 36pp; English.  
XX  
CC AAW12726-W12769 represent conotoxin peptides. This sequence represents  
CC the GI alpha-conotoxin peptide isolated from Conus geographus. These  
CC sequences are identified using the method of the invention. The method of  
CC the invention is for identifying DNA encoding A-lineage conotoxin  
CC peptides by subjecting Conus nucleic acid to amplification with primer  
CC sequences (see AAT59714 and AAT59715). The primers are specific for the  
CC signal sequence and 3'-untranslated (3'UTR) regions of the conotoxin  
CC gene, which are highly homologous between conotoxins, and are therefore  
CC suitable sites for detection. A-lineage conotoxins include alpha-  
CC conotoxins, and kappa-conotoxins. Alpha-conotoxins are powerful  
CC inhibitors of synaptic transmission at the neuromuscular junction, and  
CC are usually nicotinic acetylcholine receptor blockers. Kappa-conotoxins  
CC act on the voltage sensitive sodium and potassium channels. The  
CC conotoxins identified can be used as muscle relaxants, in the diagnosis  
CC of myasthenia gravis, and for the treatment or diagnosis of small cell  
CC lung cancer. For the treatment of small cell lung cancer, the conotoxin  
CC peptides act by binding to the nicotinic receptors, and thereby blocking  
CC the nicotine/cytosine stimulated release of the mitogen 5-  
CC hydroxytryptamine. (Updated on 25-MAR-2003 to correct PF field.)  
XX  
SQ Sequence 13 AA;  
XX

Query Match 100.0%; Score 88; DB 2; Length 13;  
Best Local Similarity 100.0%; Pred. No. 0.00013;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
DB 1 ECCNPACGRHYSC 13

RESULT 5  
AAB92210  
ID AAB92210 standard; peptide; 13 AA.  
XX  
AC AAB92210;  
XX  
DT 22-JUN-2001 (first entry)  
DT  
XX  
DE Toxin peptide SEQ ID NO:1386.  
XX  
KW Protection; endogenous therapeutic peptide; peptidase; conjugation;  
KW blood component; modification; succinimide; maleimido group; amino;  
KW hydroxyl; thiol; hormone; growth factor; neurotransmitter.  
XX  
XX Homo sapiens.  
OS Synthetic.  
XX  
PN WO200069900-A2.  
XX  
PD 23-NOV-2000.  
XX  
PF 17-MAY-2000; 2000MO-US013576.  
XX  
PR 17-MAY-1999; 99US-0134406P.  
PR 10-SEP-1999; 99US-0153406P.  
PR 15-OCT-1999; 99US-0159783P.  
XX  
PA (CONT-) CONJUCHEM INC.  
XX  
PI Bridon DP, Ezrin AM, Milner PG, Holmes DL, Thibaudau K;  
DR WPI; 2001-112059/12.  
XX  
XX Modifying and attaching therapeutic peptides to albumin prevents  
PT peptidase degradation, useful for increasing length of in vivo activity.  
PT  
XX  
PS Disclosure; Page 650; 733pp; English.  
XX  
CC The present invention describes a modified therapeutic peptide (I)  
CC comprising a therapeutically active amino acid region (III) and a  
CC reactive group (II) (e.g. succinimide and maleimido groups) attached to  
CC a less therapeutically active amino acid region (IV), which covalently  
CC bonds with amino/hydroxyl/thiol groups on blood components to form a  
CC peptidase stabilised therapeutic peptide composed of 3-50 amino acids.  
CC (I) are useful for modifying therapeutic peptides e.g. hormones, growth  
CC factors and neurotransmitters, to protect them from peptidase activity in  
CC vivo for the treatment of various disorders. Endogenous therapeutic  
CC peptides are not suitable as drug candidates as they require frequent  
CC administration due to rapid degradation by peptidases in the body.  
CC Modifying and attaching therapeutic peptides to albumin prevents or  
CC reduces the action of peptidases to increase length of activity (half  
CC life) and specifically as bonding to large molecules decreases  
CC intracellular uptake and interference with physiological processes.  
CC AAB90829 to AAB92441 represent peptides which can be used in the  
CC exemplification of the present invention  
XX  
SQ Sequence 13 AA;  
XX

Query Match 100.0%; Score 88; DB 4; Length 13;  
Best Local Similarity 100.0%; Pred. No. 0.00013;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
DB 1 ECCNPACGRHYSC 13

RESULT 6

ADJ71770  
 ID ADJ71770 standard; peptide; 13 AA.  
 XX  
 AC ADJ71770;  
 XX  
 DT 06-MAY-2004 (first entry)  
 XX  
 DE Alpha-conotoxin GI peptide.  
 XX  
 KW cyostatic; analgesic; anticonvulsant; cerebroprotective;  
 KW antiparkinsonian; nootropic; neuroprotective; anti-HIV;  
 KW modulator of cell phenotype; gene therapy; peptide aptamer;  
 KW cell phenotype modification; peptide display library; cancer; pain;  
 KW epilepsy; stroke; Parkinson's disease; Alzheimer's disease;  
 KW Huntington's disease; multiple sclerosis; AIDS.  
 XX  
 OS Synthetic.  
 XX  
 PN W02003040168-A2.  
 XX  
 PD 15-MAY-2003.  
 XX  
 PF 06-NOV-2002; 2002MO-US035584.  
 XX  
 PR 06-NOV-2001; 2001US-0333262P.  
 PR 14-FEB-2002; 2002US-0357278P.  
 XX  
 PA (ENANT-) ENANTA PHARM INC.  
 XX  
 PI Benson JD, Vincent SM, Braisher BB, Miao Z, Lamming D;  
 XX  
 DR WPI; 2003-541418/51.  
 XX  
 PT Identifying peptide aptamer capable of modifying cell phenotype, by  
 PT connecting cell sample with library encoding random peptide aptamers,  
 PT selecting cell with altered phenotype, and identifying aptamers expressed  
 PT in cell.  
 XX  
 PS Example 4; SEQ ID NO 26; 173bp; English.  
 XX  
 CC The invention relates to a method of identifying (M1) a peptide aptamer  
 CC (PA) capable of modifying a cell phenotype, involving contacting a 1st  
 CC sample of cells with a library of expressible nucleic acid sequences  
 CC encoding random peptide aptamers linked to a fusion moiety, selecting at  
 CC least one cell having an altered phenotype compared to the phenotype of  
 CC the cell prior to contacting, and identifying peptide aptamers expressed  
 CC in the selected cell. PA, its derivative or corresponding nucleic acid is  
 CC useful for the molecular modelling of an agent having similar binding  
 CC characteristics as PA. PA, its derivative or corresponding expressible  
 CC nucleic acid is useful for treating or inhibiting a disease or condition  
 CC (such as cancer) associated with an aberrant cell phenotype in a subject,  
 CC where the aberrant cell phenotype is associated with a change in levels  
 CC of apoptosis, viral resistance, signal transduction, protein trafficking,  
 CC cell adhesion, membrane transport, cell motility, metabolic state or  
 CC differentiation, when compared to a control cell, or the aberrant cell  
 CC phenotype is associated with a tumor cell. The expressible nucleic acid  
 CC is administered using a retrovirus that comprises a chromatin insulator  
 CC element. PA is useful as a prognostic or diagnostic tool, for altering a  
 CC cell phenotype, in gene therapy, as therapeutics for treating diseases  
 CC (such as pain, epilepsy, stroke, Parkinson's disease, Alzheimer's  
 CC disease, Huntington's disease, multiple sclerosis, AIDS), and for the  
 CC research and development of other therapeutics. This sequence represents  
 CC an alpha-conotoxin GI peptide.  
 CC  
 XX  
 SQ Sequence 13 AA;  
 XX  
 QY Query Match 100.0%; Score 88; DB 7; Length 13;  
 DB Best Local Similarity 100.0%; Pred. No. 0.00013;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 1 ECCNPACGRHYSC 13  
 1 ECCNPACGRHYSC 13

RESULT 7  
 ADH23228  
 ID ADH23228 standard; peptide; 13 AA.  
 XX  
 AC ADH23228;  
 XX  
 DT 11-MAR-2004 (first entry)  
 XX  
 DE Antiviral Conmus conotoxin GI alpha peptide Segid 180.  
 XX  
 KW conotoxin GI alpha; miniprotein ligand; antiviral; vaccine; flavivirus;  
 KW virus; Japanese encephalitis; West Nile; dengue; yellow fever;  
 KW tick-borne encephalitis; Kyasanur Forest disease;  
 KW OMSK haemorrhagic fever; Russian spring summer encephalitis;  
 KW central European tick-borne encephalitis; Alkurna.  
 XX  
 OS Conus.  
 XX  
 PN W02003095477-A2.  
 XX  
 PD 20-NOV-2003.  
 XX  
 PF 17-MAR-2003; 2003WO-US008150.  
 XX  
 PR 15-MAR-2002; 2002US-0365020P.  
 XX  
 PA (TEXA ) UNIV TEXAS SYSTEM.  
 XX  
 PI Fox RO, Barrett AD, Fan X, Holbrook MR,  
 XX  
 DR WPI; 2004-012084/01.  
 XX  
 PT New miniprotein ligand polypeptides useful for treating viral infections  
 PT such as Kyasanur Forest disease, OMSK hemorrhagic fever, Russian spring  
 PT summer encephalitis.  
 XX  
 PS Disclosure; SEQ ID NO 180; 124bp; English.  
 XX  
 CC This invention relates to novel miniprotein ligands that work to inhibit  
 CC the activity of specific viruses. Specifically, it refers to a method for  
 CC inhibiting viral activity by contacting the virus with a miniprotein  
 CC ligand under preferred binding conditions to inhibit their propagation  
 CC and prevent binding to the host cell. Note that these miniprotein ligands  
 CC have antiviral activity and can be used in the development of novel  
 CC vaccines. The present invention describes a method for the development of  
 CC treatments for specific infections caused by viruses from the flavivirus  
 CC family. In particular, these viruses are selected from Japanese  
 CC encephalitis, West Nile, dengue, yellow fever and tick-borne encephalitis  
 CC viruses such as Kyasanur Forest disease, OMSK hemorrhagic fever, Russian  
 CC spring summer encephalitis, central European tick-borne encephalitis and  
 CC Alkurna viruses. This peptide sequence is the Conmus conotoxin GI alpha  
 CC peptide, which provides a basis for the design of the miniprotein ligands  
 CC of the invention.  
 CC  
 XX  
 SQ Sequence 13 AA;  
 XX  
 QY Query Match 100.0%; Score 88; DB 8; Length 13;  
 DB Best Local Similarity 100.0%; Pred. No. 0.00013;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 1 ECCNPACGRHYSC 13  
 1 ECCNPACGRHYSC 13  
 RESULT 8  
 AAP40328  
 ID AAP40328 standard; peptide; 15 AA.  
 XX  
 AC AAP40328;  
 XX



DT 16-AUG-2002 (revised)  
 DT 30-JAN-1992 (first entry)  
 XX  
 DE Sequence of conotoxin peptide G1A.  
 XX  
 KM Acetylcholine receptor; reversible immobilisation;  
 KW synaptic transmission inhibitor.  
 XX  
 OS Conus geographus.  
 OS Synthetic.  
 XX  
 PH Key Location/Qualifiers  
 FT Disulfide-bond 2. .7  
 FT Modified-site 3  
 FT Modified-site /label= Cys-S(acetamido-methyl)  
 FT Modified-site /label= Cys-S(acetamido-methyl)  
 FT Modified-site 13  
 FT Modified-site /label= Cys-S(acetamido-methyl)  
 FT Modified-site 15  
 FT Modified-site /label= Lys-NH2  
 XX  
 PN US4447356-A.  
 XX  
 PD 08-MAY-1984.  
 XX  
 PF 04-JUN-1982; 82US-00385125.  
 XX  
 PR 17-APR-1981; 81US-00255237.  
 XX  
 PA (OLIV/) OLIVERA B M.  
 XX  
 PI Olivera BM, Cruz LJ, Gray WR, Rivier JEF;  
 XX  
 DR WPI; 1984-133757/21.  
 XX  
 DR Conotoxin peptide(s) - useful for reversible immobilisation of muscles  
 PT and for detecting acetylcholine receptors.  
 XX  
 PS Claim 5; Col 2; 10pp; English.  
 XX  
 CC The peptides of the invention are potent inhibitors of synaptic  
 CC transmission at the neuromuscular junction while lacking inhibition of  
 CC either nerve or muscle action potential propagation. Their action is  
 CC freely reversible on dilution or removal of the peptides from the  
 CC affected muscle. The peptides are useful for reversible immobilisation of  
 CC a muscle or gp. of muscles in man and other vertebrates and they can be  
 CC used for detection and measurement of acetylcholine receptors. (Updated  
 CC on 16-AUG-2002 to add missing OS field.)  
 CC  
 SQ Sequence 15 AA;  
 XX  
 QY 1 ECCNPACGRHYSC 13  
 Db 1 ECCNPACGRHYSC 13  
 XX  
 RESULT 9  
 AAR75265  
 ID AAR75265 standard; peptide; 15 AA.  
 XX  
 AC AAR75265;  
 XX  
 DT 21-DEC-1995 (first entry)  
 XX  
 DE Alpha-conotoxin G1A peptide.  
 XX  
 KM Alpha-conotoxin; inhibit; neuromuscular; synapse; signal transmission.  
 KW  
 OS Conus geographus.  
 XX

PN W09511256-A1.  
 XX  
 XX 27-APR-1995.  
 PD  
 XX  
 PF 19-OCT-1994; 94NO-US011927.  
 XX  
 PR 19-OCT-1993; 93US-00137800.  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 XX  
 PI Olivera BM, Cruz LJ, Hillyard DR, McIntosh JM, Santos AD;  
 XX  
 DR WPI; 1995-170189/22.  
 XX  
 DR New A-lineage conotoxin peptide(s) - which inhibit synaptic transmission  
 PT at the neuromuscular junction or are active against potassium or sodium  
 PT channels.  
 XX  
 PS Disclosure; Page 4; 66pp; English.  
 XX  
 CC The kappa-conotoxin, alpha conotoxin and alpha-like conotoxin peptides  
 CC all belong to a group of peptides known as the A-lineage conotoxin  
 CC peptides. The A lineage conotoxin peptides have a wide variety of  
 CC pharmacological uses. The A-lineage conotoxin peptides claimed (AAR75264-  
 CC R75293) are useful for the inhibition of synaptic transmission at  
 CC neuromuscular junctions by blocking nicotinic acetyl choline receptors  
 CC and they also have activity against voltage-gated Na and K channels  
 XX  
 SQ Sequence 15 AA;  
 XX  
 QY 1 ECCNPACGRHYSC 13  
 Db 1 ECCNPACGRHYSC 13  
 XX  
 RESULT 10  
 AAM12727  
 ID AAM12727 standard; peptide; 15 AA.  
 XX  
 AC AAM12727;  
 XX  
 DT 25-MAR-2003 (revised)  
 DT 16-APR-1997 (first entry)  
 XX  
 DE Alpha-conotoxin peptide G1A.  
 XX  
 KM Polymerase chain reaction; PCR; primer; amplify; conotoxin; Conus;  
 KM inhibitor; synaptic transmission; neuromuscular junction; sodium channel;  
 KM nicotinic acetylcholine receptor; potassium channel; muscle relaxant;  
 KM myasthenia gravis; small cell lung cancer; therapy.  
 XX  
 OS Conus geographus.  
 OS  
 PN US5589340-A.  
 PN  
 PD 31-DEC-1996.  
 XX  
 PF 07-JUN-1995; 95US-00477383.  
 XX  
 PR 29-JUN-1993; 93US-00084848.  
 PR 19-OCT-1993; 93US-00137800.  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 XX  
 PI Santos AD, Hillyard DR, McIntosh JM, Olivera BM, Cruz LJ;  
 XX  
 DR WPI; 1997-076840/07.  
 XX  
 PT Identifying nucleic acid encoding A-lineage conotoxin peptide(s) by

PT amplification - uses primers corresponding to conserved regions in the  
PT signal sequence and 3'-untranslated regions, useful e.g. in treatment of  
PT small cell lung cancer.

PS Disclosure; Col 3; 36pp; English.

XX

CC AA012726-W12769 represent conotoxin peptides. This sequence represents  
CC the G1A alpha-conotoxin peptide isolated from Conus geographus. These  
CC sequences are identified using the method of the invention. The method of  
CC the invention is for identifying DNA encoding A-lineage conotoxin  
CC peptides by subjecting Conus nucleic acid to amplification with primer  
CC sequences (see AA059714 and AA059715). The primers are specific for the  
CC signal sequence and 3'-untranslated (3'UTR) regions of the conotoxin  
CC gene, which are highly homologous between conotoxins, and are therefore  
CC suitable sites for detection. A-lineage conotoxins include alpha-  
CC conotoxins, and kappa-conotoxins. Alpha-conotoxins are powerful  
CC inhibitors of synaptic transmission at the neuromuscular junction, and  
CC are usually nicotinic acetylcholine receptor blockers. Kappa-conotoxins  
CC act on the voltage sensitive sodium and potassium channels. The  
CC conotoxins identified can be used as muscle relaxants, in the diagnosis  
CC of myasthenia gravis, and for the treatment or diagnosis of small cell  
CC lung cancer. For the treatment of small cell lung cancer, the conotoxin  
CC peptides act by binding to the nicotinic receptors, and thereby blocking  
CC the nicotine/cytosine stimulated release of the mitogen 5-  
CC hydroxytryptamine. (Updated on 25-MAR-2003 to correct PF field.)  
CC

SQ Sequence 15 AA;

OY Query Match 100.0%; Score 88; DB 2; Length 15;  
Best Local Similarity 100.0%; Pred. No. 0.00015;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

DB 1 ECNPNACGRHYSC 13  
1 ECNPNACGRHYSC 13

RESULT 11  
AA015129  
ID AA015129 standard; protein; 59 AA.  
XX  
XX AA015129;  
AC  
DT 12-MAR-2001 (first entry)  
DE  
XX Alpha-conotoxin propeptide GIB.  
DE  
KW Alpha-conotoxin; neuromuscular; nicotinic acetylcholine receptor;  
KW neuromuscular blocking agent; muscle relaxant; anaesthesia;  
KW benign essential blepharospasm; focal dystonia; anti-wrinkle agent.  
XX  
XX Conus sp.  
OS  
XX WO200043409-A2.  
PN  
PD 27-JUL-2000.  
XX  
PF 21-JAN-2000; 2000WO-US001372.  
XX  
PR 22-JAN-1999; 99US-0116881P.  
PR 22-JAN-1999; 99US-0116882P.  
XX  
PA (UTAH ) UNIV UTAH RES FOUND.  
PA (COGN-) COGENERIX INC.  
XX  
PI Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM,  
PI Jones RM;  
XX  
XX WPI; 2000-499215/44.  
DR N-PSDB; AAA74552.  
XX  
PT New alpha-conotoxin peptides, 10-25 residues in length, useful as  
neuromuscular blocking agents (e.g. as muscle relaxants) during surgical

PT procedures requiring anesthesia and musculoskeletal relaxation.

XX  
XX Example 4; Page 25; 95pp; English.

PS  
CC Alpha-conotoxins are small peptides, which are highly specific for  
CC neuromuscular junction nicotinic acetylcholine receptors. The present  
CC sequence is an alpha-conotoxin propenptide. The mature peptide of the  
CC present sequence is useful as a neuromuscular blocking agent (e.g. as a  
CC muscle relaxant) during surgical procedures requiring anaesthesia and  
CC musculoskeletal relaxation, for treating benign essential blepharospasm  
CC and other forms of focal dystonia. The mature peptide of the present  
CC peptide is also useful as an anti-wrinkle agent

SO Sequence 59 AA;

S0

Query Match 100.0%; Score 88; DB 3; Length 59;  
Best Local Similarity 100.0%; Pred. No. 0.00045;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 ECCHPACGRHNSC 13  
|||||  
45 ECCHPACGRHNSC 57

D6

RESULT 12  
AAB15132  
ID AAB15132 standard; protein; 59 AA.  
XX  
XX AAB15132;  
XX  
XX 12-MAR-2001 (first entry)  
XX  
DE Alpha-conotoxin propenptide R1.3.  
XX  
XX Alpha-conotoxin; neuromuscular; nicotinic acetylcholine receptor;  
KW neuromuscular blocking agent; muscle relaxant; anaesthesia;  
KW benign essential blepharospasm; focal dystonia; anti-wrinkle agent.  
XX  
OS Conus sp.  
XX  
FN WO200043409-A2.  
PN  
PD 27-JUL-2000.  
XX  
XX 21-JAN-2000; 2000WO-US001372.  
PF  
PR 22-JAN-1999; 99US-0116881P.  
PR 22-JAN-1999; 99US-0116882P.  
XX  
XX (UTAH ) UNIV UTAH RES FOUND.  
PA (COGN-) COGNETIX INC.  
XX  
PI Olivera BM, Laver RT, Watkins M, Hillyard DR, McIntosh JM,  
PJ Jones RM;  
XX  
DR WPI: 2000-499215/44.  
DR N-PSDB; AAA74555.  
XX  
XX New alpha-conotoxin peptides, 10-25 residues in length, useful as  
PT neuromuscular blocking agents (e.g. as muscle relaxants) during surgical  
PT procedures requiring anaesthesia and musculoskeletal relaxation.  
PI  
XX  
XX Example 4; Page 26; 95pp; English.

PS Alpha-conotoxins are small peptides, which are highly specific for  
CC neuromuscular junction nicotinic acetylcholine receptors. The present  
CC sequence is an alpha-conotoxin propenptide. The mature peptide of the  
CC present sequence is useful as a neuromuscular blocking agent (e.g. as a  
CC muscle relaxant) during surgical procedures requiring anaesthesia and  
CC musculoskeletal relaxation, for treating benign essential blepharospasm  
CC and other forms of focal dystonia. The mature peptide of the present  
CC peptide is also useful as an anti-wrinkle agent

XX

SQ Sequence 59 AA;

Query Match 100.0%; Score 88; DB 3; Length 59;  
 Best Local Similarity 100.0%; Pred. No. 0.00045;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
 |||||  
 DB 45 ECCNPACGRHYSC 57

RESULT 13

AAE19734 standard; protein; 59 AA.

AAE15138;

12-MAR-2001 (first entry)

Alpha-conotoxin propeptide GIB.

Alpha-conotoxin; neuromuscular; nicotinic acetylcholine receptor;  
 neuromuscular blocking agent; muscle relaxant; anaesthesia;  
 benign essential blepharospasm; focal dystonia; anti-wrinkle agent.

Conus sp.

WO200043409-A2.

27-JUL-2000.

21-JAN-2000; 2000WO-US001372.

22-JAN-1999; 99US-0116881P.

22-JAN-1999; 99US-0116882P.

(UTAH ) UNIV UTAH RES FOUND.

(COGN-) COGNETIX INC.

Olivera BM, Laver RT, Watkins M, Hillyard DR, McIntosh JM;

Jones RM;

WPI; 2000-499215/44.

N-PSDB; AAA74561.

New alpha-conotoxin peptides, 10-25 residues in length, useful as

neuromuscular blocking agents (e.g. as muscle relaxants) during surgical

procedures requiring anesthesia and musculoskeletal relaxation.

Example 4; Page 27; 95pp; English.

Alpha-conotoxins are small peptides, which are highly specific for  
 neuromuscular junction nicotinic acetylcholine receptors. The present  
 sequence is an alpha-conotoxin propeptide. The mature peptide of the  
 present sequence is useful as a neuromuscular blocking agent (e.g. as a  
 muscle relaxant) during surgical procedures requiring anaesthesia and  
 musculoskeletal relaxation, for treating benign essential blepharospasm  
 and other forms of focal dystonia. The mature peptide of the present  
 peptide is also useful as an anti-wrinkle agent

Sequence 59 AA;

Query Match 100.0%; Score 88; DB 3; Length 59;  
 Best Local Similarity 100.0%; Pred. No. 0.00045;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
 |||||  
 DB 45 ECCNPACGRHYSC 57

RESULT 14

AAE19734

ID AAE19734 standard; protein; 59 AA.

AAE19734;

31-MAY-2002 (first entry)

Conus geographus GIB alpha-conotoxin protein.

Cone snail; neuromuscular blocking agent; muscle relaxation; caesarean;  
 muscle contraction; therapy; anaesthesia; musculoskeletal relaxation;  
 benign essential blepharospasm; focal dystonia; anti-wrinkle;  
 GIB alpha-conotoxin.

Conus geographus.

WO200207750-A1.

31-JAN-2002.

20-JUL-2001; 2001WO-US022892.

20-JUL-2000; 2000US-0219407P.

28-JUL-2000; 2000US-0221557P.

(COGN-) COGNETIX INC.

(UTAH ) UNIV UTAH RES FOUND.

Olivera BM, Laver RT, Watkins M, Hillyard DR, McIntosh JM;

Schoenfeld R, Jones RM, Nielsen J;

WPI; 2002-217022/27.

N-PSDB; AAD31480.

New alpha-conotoxin peptide analogs, useful as neuromuscular blocking

agents, particularly for providing muscle relaxation during caesarean

section or surgical procedures requiring anesthesia and musculoskeletal

relaxation.

Example 4; Page 28; 96pp; English.

The present invention relates to novel alpha-conotoxin peptides which are  
 naturally available in minute amounts in the venom of cone snails. The  
 invention also relates to alpha-conotoxin peptide analogues. The alpha-  
 conotoxin peptides are useful as neuromuscular blocking agents in  
 conjunction with surgery or for intubation of the trachea by conventional  
 parenteral administration. They are useful for providing muscle  
 relaxation during caesarean section procedures and hence minimize muscle  
 contraction. Peptides of the invention are useful for treating a patient  
 during surgical procedures requiring anaesthesia and musculo-skeletal  
 relaxation. They are useful as muscle relaxants for treating benign  
 essential blepharospasm and other forms of focal dystonia and for anti-  
 wrinkle use. The present sequence is Conus geographus GIB alpha-conotoxin  
 protein

Sequence 59 AA;

Query Match 100.0%; Score 88; DB 5; Length 59;  
 Best Local Similarity 100.0%; Pred. No. 0.00045;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
 |||||  
 DB 45 ECCNPACGRHYSC 57

RESULT 15

AAE19725 standard; protein; 59 AA.

AAE19725;

31-MAY-2002 (first entry)

XX Conus geographus GI alpha-conotoxin protein.  
 KW Cone snail; neuromuscular blocking agent; muscle relaxation; caesarean;  
 KM muscle contraction; therapy; anaesthesia; musculoskeletal relaxation;  
 KW benign essential blepharospasm; focal dystonia; anti-wrinkle;  
 KM GI alpha-conotoxin.  
 XX  
 OS Conus geographus.  
 XX  
 PN W0200207750-A1.  
 XX  
 PD 31-JAN-2002.  
 XX  
 PF 20-JUL-2001; 2001WO-US022892.  
 XX  
 PR 20-JUL-2000; 2000US-0219407P.  
 XX 28-JUL-2000; 2000US-0221557P.  
 XX  
 PA (COGN-) COGNEXIX INC.  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 XX  
 PI Olivera BW, Leyer RT, Watkins M, Hillyard DR, McIntosh JM,  
 PI Schoenfeld R, Jones RM, Nielsen J;  
 XX  
 XX WPI; 2002-217022/27.  
 DR N-PSDB; AAD31471.  
 XX  
 XX New alpha-conotoxin peptide analogs, useful as neuromuscular blocking  
 PT agents, particularly for providing muscle relaxation during caesarean  
 PT section or surgical procedures requiring anesthesia and musculoskeletal  
 PT relaxation.  
 XX  
 PS Example 4; Page 25; 96pp; English.  
 XX  
 XX The present invention relates to novel alpha-conotoxin peptides which are  
 CC naturally available in minute amounts in the venom of cone snails. The  
 CC invention also relates to alpha-conotoxin peptide analogues. The alpha-  
 CC conotoxin peptides are useful as neuromuscular blocking agents in  
 CC conjunction with surgery or for intubation of the trachea by conventional  
 CC parenteral administration. They are useful for providing muscle  
 CC relaxation during caesarean section procedures and hence minimise muscle  
 CC contraction. Peptides of the invention are useful for treating a patient  
 CC during surgical procedures requiring anesthesia and musculo-skeletal  
 CC relaxation. They are useful as muscle relaxants for treating benign  
 CC essential blepharospasm and other forms of focal dystonia and for anti-  
 CC wrinkle use. The present sequence is Conus geographus GI alpha-conotoxin  
 CC protein  
 CC  
 SO Sequence 59 AA;  
 QY  
 Query Match 100.0%; Score 88; DB 5; Length 59;  
 Best Local Similarity 100.0%; Pred. No. 0.00045;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 1 ECNPACGRHYS C 13  
 |||||  
 Db 45 ECNPACGRHYS C 57  
 |||||  
 RESULT 16  
 AAE19728  
 ID AAE19728 standard; protein; 59 AA.  
 XX  
 AC AAE19728;  
 XX  
 DT 31-MAY-2002 (first entry)  
 DE  
 XX Conus radiatus R1.3 alpha-conotoxin protein.  
 KW Cone snail; neuromuscular blocking agent; muscle relaxation; caesarean;  
 KM muscle contraction; therapy; anaesthesia; musculoskeletal relaxation;  
 KW benign essential blepharospasm; focal dystonia; anti-wrinkle;  
 KM R1.3 alpha-conotoxin.

XX	Conus radiatus.
OS	
XX	WO200207750-A1.
PN	
XX	31-JAN-2002.
PD	
XX	20-JUL-2001; 2001WO-US022892.
PF	
XX	20-JUL-2000; 2000US-0219407P.
XX	
PR	28-JUL-2000; 2000US-0221557P.
PR	
XX	
XX	(COGN-) COGNETIX INC.
PA	(UTAH ) UNIV UTAH RES FOUND.
PA	
XX	Olivera BW, Laver RT, Watkins M, Hillyard DR, McIntosh JM;
F1	Schoenfeld R, Jones RW, Nielsen J;
F1	
XX	WPI; 2002-217022/27.
DR	N-PSDB; AAD31474.
DR	
XX	
XX	New alpha-conotoxin peptide analogs, useful as neuromuscular blocking
PT	agents, particularly for providing muscle relaxation during cesarean
PT	section or surgical procedures requiring anesthesia and musculoskeletal
PT	relaxation.
XX	
PS	Example 4; Page 26; 96pp; English.
XX	
CC	The present invention relates to novel alpha-conotoxin peptides which are
CC	naturally available in minute amounts in the venom of cone snails. The
CC	invention also relates to alpha-conotoxin peptide analogues. The alpha-
CC	conotoxin peptides are useful as neuromuscular blocking agents in
CC	conjunction with surgery or for intubation of the trachea by conventional
CC	parenteral administration. They are useful for providing muscle
CC	relaxation during cesarean section procedures and hence minimise muscle
CC	contraction. Peptides of the invention are useful for treating a patient
CC	during surgical procedures requiring anaesthesia and musculo-skeletal
CC	relaxation. They are useful as muscle relaxants for treating benign
CC	essential blepharospasm and other forms of focal dystonia and for anti-
CC	wrinkle use. The present sequence is Conus radiatus R1.3 alpha-conotoxin
CC	protein
XX	
XX	Sequence 59 AA;
SQ	
XX	
XX	Query Match 100.0%; Score 88; DB 5; Length 59;
XX	Best Local Similarity 100.0%; Pred. No. 0.00045;
XX	Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
OY	1 ECCNPACGRHYS C 13
DB	45 ECCNPACGRHYS C 57
RESULT 17	
AAAR38801	
ID	AAAR38801 standard; peptide; 64 AA.
XX	
AC	AAAR38801;
XX	
DT	22-FEB-1994 (first entry)
XX	
DE	Conotoxin prepropeptide GI.
XX	
KW	Calcium channel; toxin; MW1B; Conus magus; GVIA; neurone; omega;
KW	C. geographus; conotoxin; presynaptic; specificity; calcium target;
KW	cysteine; framework; template domain; venom; signal sequence.
XX	
OS	Conus sp.
XX	
XX	
FH	Key
FT	Region
FT	Location/Qualifiers
XX	50..61
XX	/note= "Mature omega-toxin"
XX	

PN US5231011-A.  
 XX  
 XX 27-JUL-1993.  
 PD  
 XX 18-APR-1991; 91US-00689693.  
 PF  
 XX 18-APR-1991; 91US-00689693.  
 PR  
 XX (UTAH ) UNIV UTAH.  
 PA  
 PI Hilliard DR, Olivera BM;  
 XX  
 XX WPI; 1993-249725/31.  
 DR  
 XX  
 XX Formation of cysteine-rich peptide of specified di: sulphide bonding -  
 PT involves forming pre-pro-peptide with N-terminal excised region which  
 PT acts as templates for directing di: sulphide bond formation in cysteine-  
 PT rich peptide.  
 PS  
 XX Example 1; Col 8; 15pp; English.  
 PS  
 XX The sequences given in AAR38797-801 represent conotoxin prepropeptides  
 CC which are precursors to conotoxin. The mature conotoxin peptide sequences  
 CC were determined by direct peptide sequencing of purified venom duct  
 CC components. The prepropeptide sequences were determined by cDNA  
 CC sequencing of messages expressed in venom duct tissue. Each of these  
 CC prepropeptides conforms to a general architectural theme. They contain  
 CC an N-terminal hydrophobic signal sequence domain of approximately 20  
 CC amino acids followed by a domain of variable length (25-30 amino acids)  
 CC which is neither a signal sequence nor the final biologically active  
 CC toxin. These two N-terminal domains are excised from the precursor  
 CC molecule during processing. The third region at the C-terminal end  
 CC contains toxin specific sequences and is referred to as the 'mature  
 CC peptide'. In each case, one or more basic amino acids separate the second  
 CC and third domains, affording a cleavage site for excision of the 'mature  
 CC peptide'.  
 CC  
 XX Sequence 64 AA;  
 SQ  
 Query Match 100.0%; Score 88; DB 2; Length 64;  
 Best Local Similarity 100.0%; Pred. No. 0.00049;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 ECCNPACGRHYSC 13  
 DB 50 ECCNPACGRHYSC 62  
 RESULT 18  
 AAR75296  
 ID AAR75296 standard; peptide; 64 AA.  
 XX  
 AC AAR75296;  
 XX  
 DT 22-DEC-1995 (first entry)  
 XX  
 DE Alpha-conotoxin GI prepropeptide sequence.  
 XX  
 KM Alpha-conotoxin; neuromuscular; synapse; signal transduction.  
 KW  
 OS Conus striatus.  
 OS  
 PN WO9511256-A1.  
 PN  
 PD 27-APR-1995.  
 PD  
 XX 19-OCT-1994; 94WO-US011927.  
 PF  
 XX 19-OCT-1993; 93US-00137800.  
 PR  
 XX (UTAH ) UNIV UTAH RES FOUND.  
 PA  
 PI Olivera BM, Cruz LJ, Hilliard DR, McIntosh JM, Santos AD;

XX  
 DR WPI; 1995-170189/22.  
 XX  
 XX New A-lineage conotoxin peptide(s) - which inhibit synaptic transmission  
 PT at the neuromuscular junction or are active against potassium or sodium  
 PT channels.  
 PT  
 XX Disclosure; Page 51; 66pp; English.  
 PS  
 XX AAR75296-R75298 are the prepropeptide sequences of 3 alpha-conotoxin  
 CC peptides. The kappa-conotoxin, alpha-conotoxin and alpha-like conotoxin  
 CC peptides all belong to a group of peptides known as the A-lineage  
 CC conotoxin peptides. The A-lineage conotoxin peptides have a wide variety  
 CC of pharmacological uses. The A-lineage conotoxin peptides claimed  
 CC (AAR75264-R75293) are useful for the inhibition of synaptic transmission  
 CC at neuromuscular junctions by blocking nicotinic acetyl choline receptors  
 CC and they also have activity against voltage-gated Na and K channels  
 CC  
 XX Sequence 64 AA;  
 SQ  
 Query Match 100.0%; Score 88; DB 2; Length 64;  
 Best Local Similarity 100.0%; Pred. No. 0.00049;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 ECCNPACGRHYSC 13  
 DB 50 ECCNPACGRHYSC 62  
 RESULT 19  
 AAM12759  
 ID AAM12759 standard; peptide; 64 AA.  
 XX  
 AC AAM12759;  
 XX  
 DT 25-MAR-2003 (revised)  
 DT 16-APR-1997 (first entry)  
 XX  
 DE A-lineage conotoxin GI prepropeptide.  
 XX  
 KM Polymerase chain reaction; PCR; primer; amplify; conotoxin; Conus;  
 KM inhibitor; synaptic transmission; neuromuscular junction; sodium channel;  
 KM nicotinic acetylcholine receptor; potassium channel; muscle relaxant;  
 KM myasthenia gravis; small cell lung cancer; therapy.  
 KW  
 OS Conus geographus.  
 OS  
 PN US589340-A.  
 PN  
 PD 31-DEC-1996.  
 PD  
 XX 07-JUN-1995; 95US-00477383.  
 PF  
 XX 29-JUN-1993; 93US-00084848.  
 PR  
 XX 19-OCT-1993; 93US-00137800.  
 PR  
 XX (UTAH ) UNIV UTAH RES FOUND.  
 PA  
 PI Santos AD, Hilliard DR, McIntosh JM, Olivera BM, Cruz LJ;  
 XX  
 XX WPI; 1997-076840/07.  
 DR  
 XX Identifying nucleic acid encoding A-lineage conotoxin peptide(s) by  
 PT amplification - uses primers corresponding to conserved regions in the  
 PT signal sequence and 3'-untranslated regions, useful e.g. in treatment of  
 PT small cell lung cancer.  
 PT  
 XX Disclosure; Col 7; 36pp; English.  
 PS  
 XX AAM12726-W12769 represent conotoxin peptides. This sequence represents  
 CC the A-lineage conotoxin GI prepropeptide isolated from Conus geographus.  
 CC These sequences are identified using the method of the invention. The  
 CC method of the invention is for identifying DNA encoding A-lineage

CC conotoxin peptides by subjecting Conus nucleic acid to amplification with  
CC primer sequences (see AAT59714 and AAT59715). The primers are specific  
CC for the signal sequence and 3'-untranslated (3'UTR) regions of the  
CC conotoxin gene, which are highly homologous between conotoxins, and are  
CC therefore suitable sites for detection. A-lineage conotoxins include  
CC alpha-conotoxins, and kappa-conotoxins. Alpha-conotoxins are powerful  
CC inhibitors of synaptic transmission at the neuromuscular junction, and  
CC are usually nicotinic acetylcholine receptor blockers. Kappa-conotoxins  
CC act on the voltage sensitive sodium and potassium channels. The  
CC conotoxins identified can be used as muscle relaxants, in the diagnosis  
CC of myasthenia gravis, and for the treatment of small cell lung cancer, the conotoxin  
CC lung cancer. For the treatment of small cell lung cancer, the conotoxin  
CC peptides act by binding to the nicotinic receptors, and thereby blocking  
CC the nicotine/cytosine stimulated release of the mitogen 5-  
CC hydroxytryptamine. (Updated on 25-MAR-2003 to correct PF field.)  
XX  
SQ Sequence 64 AA;  
Query Match 100.0%; Score 88; DB 2; Length 64;  
Best Local Similarity 100.0%; Pred. No. 0.00049;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
OY 1 ECCNPACGRHYSC 13  
Db 50 ECCNPACGRHYSC 62  
RESULT 20  
AAE19779  
ID AAE19779 standard; peptide; 13 AA.  
XX  
AC AAE19779;  
XX  
DT 31-MAY-2002 (first entry)  
XX  
DE GI alpha-conotoxin peptide analogue GI[R9Q].  
XX  
XX Cone snail; neuromuscular blocking agent; muscle relaxation; cesarean;  
XX muscle contraction; therapy; anaesthesia; musculoskeletal relaxation;  
XX benign essential blepharospasm; focal dystonia; anti-wrinkle;  
XX GI alpha-conotoxin peptide.  
OS  
OS Conus sp.  
OS Synthetic.  
XX  
FH Key Location/Qualifiers  
FT Misc-difference 9 /note= "Wild type Arg substituted with Gln"  
FT Misc-difference 11 /note= "This residue is given as Thr in the sequence  
FT shown as SEQ ID NO: 119 in the sequence listing"  
XX  
XX WO200207750-A1.  
XX  
XX 31-JAN-2002.  
XX  
XX 20-JUL-2001; 2001WO-US022892.  
XX  
XX 20-JUL-2000; 2000US-0219407P.  
XX 28-JUL-2000; 2000US-0221557P.  
XX  
XX (COGN-) COGNETIX INC.  
XX (UTAH ) UNIV UTAH RES FOUND.  
XX  
XX Oliviera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;  
XX Schoenfeld R, Jones RM, Nielsen J;  
XX WPI; 2002-217022/27.  
XX  
XX New alpha-conotoxin peptide analogs, useful as neuromuscular blocking  
XX agents, particularly for providing muscle relaxation during cesarean  
XX section or surgical procedures requiring anesthesia and musculoskeletal  
XX relaxation.

XX  
PS Claim 1; Page 39; 96pp; English.  
XX  
XX The present invention relates to novel alpha-conotoxin peptides which are  
XX naturally available in minute amounts in the venom of cone snails. The  
XX invention also relates to alpha-conotoxin peptide analogues. The alpha-  
XX conotoxin peptides are useful as neuromuscular blocking agents in  
XX conjunction with surgery or for intubation of the trachea by conventional  
XX parenteral administration. They are useful for providing muscle  
XX relaxation during cesarean section procedures and hence minimise muscle  
XX contraction. Peptides of the invention are useful for treating a patient  
XX during surgical procedures requiring anaesthesia and musculo-skeletal  
XX relaxation. They are useful as muscle relaxants for treating benign  
XX essential blepharospasm and other forms of focal dystonia and for anti-  
XX wrinkle use. The present sequence is GI alpha-conotoxin peptide analogue  
XX  
SQ Sequence 13 AA;  
Query Match 95.5%; Score 84; DB 5; Length 13;  
Best Local Similarity 92.3%; Pred. No. 0.00042;  
Matches 12; Conservative 1; Mismatches 0; Indels 0; Gaps 0;  
OY 1 ECCNPACGRHYSC 13  
Db 1 ECCNPACGRHYSC 13  
RESULT 21  
ABG99809  
ID ABG99809 standard; peptide; 13 AA.  
XX  
XX ABG99809;  
XX  
XX 17-JAN-2003 (first entry)  
XX  
XX Conus sp conotoxin-associated peptide SEQ ID 594.  
XX  
XX Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;  
XX ligand-gated ion channel modulator; pain-relief.  
XX  
XX Conus geographus.  
XX  
XX WO200264740-A2.  
XX  
XX 22-AUG-2002.  
XX  
XX 11-FEB-2002; 2002WO-US003887.  
XX 09-FEB-2001; 2001US-0267408P.  
XX  
XX (COGN-) COGNETIX INC.  
XX (UTAH ) UNIV UTAH RES FOUND.  
XX  
XX Oliviera BM, McIntosh JM, Garrett JE, Cruz LJ;  
XX Grilley M, Walker CS, Shetty R, Jones RM, Schoenfeld RM;  
XX WPI; 2002-706921/76.  
XX  
XX New cone snail conotoxin peptides, useful as a pain reliever for  
XX alleviating pain in an individual suffering from pain or who is about to  
XX be subjected to a pain-causing event, or for treating voltage-gated ion  
XX channel disorders.  
XX  
XX Claim 1; Page 297; 305pp; English.  
XX  
XX This invention describes novel conotoxin peptides from the cone snail,  
XX genus Conus which have analgesic activity and can act as a voltage-gated  
XX ion channel modulator or a ligand-gated ion channel modulator. The  
XX conotoxin peptide is useful as a pain-relieving agent for alleviating  
XX pain in an individual who is either exhibiting pain or is about to be  
XX subjected to a pain-causing event. The conotoxin peptide is also useful  
XX for treating or preventing disorders associated with voltage-gated ion  
XX channel disorders, ligand-gated ion channel disorders or receptor

CC disorders. The radiolabeled conotoxin peptide is also useful for  
 CC characterizing a new site on these receptors or channels, and for  
 CC screening and identifying novel small molecules that interact with the  
 CC above-mentioned channels or receptors, which are monoamine transporters.  
 CC ABG9360-ABG9383 represent the conotoxin protein and peptides described  
 CC in the disclosure of the invention

XX  
 SQ Sequence 13 AA;

Query Match 95.5%; Score 84; DB 5; Length 13;  
 Best Local Similarity 92.3%; Pred. No. 0.00042;  
 Matches 12; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHSC 13  
 |||||  
 Db 1 ECCNPACGRHSC 13

RESULT 22  
 ABG99619

ID ABG99619 standard; protein; 59 AA.

XX ABG99619;

XX 17-JAN-2003 (first entry)

XX Conus sp conotoxin-associated protein SEQ ID 380.

XX Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;  
 XX ligand-gated ion channel modulator; pain-relief.

XX Conus geographus.

XX WO200264740-A2.

XX 22-AUG-2002.

XX 11-FEB-2002; 2002WO-US003887.

XX 09-FEB-2001; 2001US-0267408P.

XX (COGN-) COGNETIX INC.  
 XX (UTAH) UNIV UTAH RES FOUND.

XX Olivera BM, McIntosh JM, Watkins M, Garrett JE, Cruz LJ;  
 XX Grille M, Walker CS, Shetty R, Jones RM, Schoenfeld RM;  
 XX WPI; 2002-706921/76.

XX N-PSDB; ABX04946.

XX New cone snail conotoxin peptides, useful as a pain reliever for  
 XX alleviating pain in an individual suffering from pain or who is about to  
 XX be subjected to a pain-causing event, or for treating voltage-gated ion  
 XX channel disorders.

XX Claim 1; Page 248; 305pp; English.

XX This invention describes novel conotoxin peptides from the cone snail,  
 CC genus Conus which have analgesic activity and can act as a voltage-gated  
 CC ion channel modulator or a ligand-gated ion channel modulator. The  
 CC conotoxin peptide is useful as a pain-relieving agent for alleviating  
 CC pain in an individual who is either exhibiting pain or is about to be  
 CC subjected to a pain-causing event. The conotoxin peptide is also useful  
 CC for treating or preventing disorders associated with voltage-gated ion  
 CC channel disorders, ligand-gated ion channel disorders or receptor  
 CC disorders. The radiolabeled conotoxin peptide is also useful for  
 CC characterizing a new site on these receptors or channels, and for  
 CC screening and identifying novel small molecules that interact with the  
 CC above-mentioned channels or receptors, which are monoamine transporters.  
 CC ABG9360-ABG9383 represent the conotoxin protein and peptides described  
 CC in the disclosure of the invention

XX Sequence 59 AA;

Query Match 95.5%; Score 84; DB 5; Length 59;  
 Best Local Similarity 92.3%; Pred. No. 0.0015;  
 Matches 12; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHSC 13  
 |||||  
 Db 45 ECCNPACGRHSC 57

RESULT 23

ID AAE19780 standard; peptide; 13 AA.

XX AAE19780;

XX 31-MAY-2002 (first entry)

XX GI alpha-conotoxin peptide analogue GI[R9N].

XX Cone snail; neuromuscular blocking agent; muscle relaxation; cesarean;  
 XX muscle contraction; therapy; anaesthesia; musculoskeletal relaxation;  
 XX benign essential blepharospasm; focal dystonia; anti-wrinkle;  
 XX GI alpha-conotoxin peptide.

XX Conus sp.  
 XX Synthetic.

XX Key Location/Qualifiers

XX MISC-difference 9 /note= "Wild type Arg substituted with Asn"  
 XX MISC-difference 11 /note= "This residue is given as Thr in the sequence  
 XX shown as SEQ ID NO: 120 in the sequence listing"

XX WO200207750-A1.

XX 31-JAN-2002.

XX 20-JUL-2001; 2001WO-US022892.

XX 20-JUL-2000; 2000US-0219407P.

XX 28-JUL-2000; 2000US-0221557P.

XX (COGN-) COGNETIX INC.  
 XX (UTAH) UNIV UTAH RES FOUND.

XX Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;  
 XX Schoenfeld R, Jones RM, Nielsen J;  
 XX WPI; 2002-217022/27.

XX New alpha-conotoxin peptide analogs, useful as neuromuscular blocking  
 XX agents, particularly for providing muscle relaxation during cesarean  
 XX section or surgical procedures requiring anesthesia and musculoskeletal  
 XX relaxation.

XX Claim 1; Page 39; 96pp; English.

XX The present invention relates to novel alpha-conotoxin peptides which are  
 CC naturally available in minute amounts in the venom of cone snails. The  
 CC invention also relates to alpha-conotoxin peptide analogues. The alpha-  
 CC conotoxin peptides are useful as neuromuscular blocking agents in  
 CC conjunction with surgery or for intubation of the trachea by conventional  
 CC parenteral administration. They are useful for providing muscle  
 CC relaxation during cesarean section procedures and hence minimize muscle  
 CC contraction. Peptides of the invention are useful for treating a patient  
 CC during surgical procedures requiring anaesthesia and musculo- skeletal  
 CC relaxation. They are useful as muscle relaxants for treating benign  
 CC essential blepharospasm and other forms of focal dystonia and for anti-  
 CC wrinkle use. The present sequence is GI alpha-conotoxin peptide analogue

XX Sequence 13 AA;

Query Match 94.3%; Score 83; DB 5; Length 13;  
 Best Local Similarity 92.3%; Pred. No. 0.00056;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYS 13  
 Db 1 ECCNPACGRHYS 13

## RESULT 24

ADJ71772  
 ID ADJ71772 standard; peptide; 15 AA.

XX ADJ71772;

XX 06-MAY-2004 (first entry)

DE Exemplary alpha-conotoxin GI peptide.

XX cytosolic; analgesic; anticonvulsant; cerebroprotective;

KW antiparkinsonian; nootropic; neuroprotective; anti-HIV;

KW modulator of cell phenotype; gene therapy; peptide aptamer;

KW cell phenotype modification; peptide display library; cancer; pain;

KW epilepsy; stroke; Parkinson's disease; Alzheimer's disease;

KW Huntington's disease; multiple sclerosis; AIDS.

XX Synthetic.

XX MO2003040168-A2.

XX 15-MAY-2003.

XX 06-NOV-2002; 2002WO-US035584.

XX 06-NOV-2001; 2001US-0333262P.

PR 14-FEB-2002; 2002US-0357278P.

PA (ENAN-) ENANTA PHARM INC.

PI Benson JD, Vincent SM, Braeher BB, Miao Z, Lamming D;

XX MPI; 2003-541418/51.

DR N-PSDB; ADJ71771.

XX Identifying peptide aptamer capable of modifying cell phenotype, by  
 PT contacting cell sample with library encoding random peptide aptamers,  
 PT selecting cell with altered phenotype, and identifying aptamers expressed  
 in cell.

XX Example 5; SEQ ID NO 28; 173pp; English.

XX The invention relates to a method of identifying (MI) a peptide aptamer  
 CC (PA) capable of modifying a cell phenotype, involving contacting a 1st  
 CC sample of cells with a library of expressible nucleic acid sequences  
 CC encoding random peptide aptamers linked to a fusion moiety, selecting at  
 CC least one cell having an altered phenotype compared to the phenotype of  
 CC the cell prior to contacting, and identifying peptide aptamers expressed  
 CC in the selected cell. PA, its derivative or corresponding nucleic acid is  
 CC useful for the molecular modeling of an agent having similar binding  
 CC characteristics as PA. PA, its derivative or corresponding expressible  
 CC nucleic acid is useful for treating or inhibiting a disease or condition  
 CC (such as cancer) associated with an aberrant cell phenotype in a subject,  
 CC where the aberrant cell phenotype is associated with a change in levels  
 CC of apoptosis, viral resistance, signal transduction, protein trafficking,  
 CC cell adhesion, membrane transport, cell motility, metabolic state or  
 CC differentiation, when compared to a control cell, or the aberrant cell  
 CC phenotype is associated with a tumor cell. The expressible nucleic acid  
 CC is administered using a retrovirus that comprises a chromatin insulator  
 CC element. PA is useful as a prognostic or diagnostic tool, for altering a  
 CC cell phenotype, in gene therapy, as therapeutics for treating diseases  
 CC (such as pain, epilepsy, stroke, Parkinson's disease, Alzheimer's  
 CC disease, Huntington's disease, multiple sclerosis, AIDS), and for the

CC research and development of other therapeutics. This sequence represents  
 CC an alpha-conotoxin GI peptide.

XX Sequence 15 AA;

QY 2 CCNPACGRHYS 13  
 Db 1 CCNPACGRHYS 12

Query Match 94.3%; Score 83; DB 7; Length 15;  
 Best Local Similarity 100.0%; Pred. No. 0.00063;  
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 CCNPACGRHYS 13  
 Db 1 CCNPACGRHYS 12

## RESULT 25

ABG99808  
 ID ABG99808 standard; peptide; 13 AA.

XX ABG99808;

XX 17-JAN-2003 (first entry)

DE Conus sp. conotoxin-associated peptide SEQ ID 593.

KW Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;

KW ligand-gated ion channel modulator; pain-relief.

XX Conus geographus.

XX MO200264740-A2.

XX 22-AUG-2002.

XX 11-FEB-2002; 2002WO-US003887.

XX 09-FEB-2001; 2001US-0267408P.

PA (COGN-) COGNETIX INC.

PA (UTAH) UNIV UTAH RES FOUND.

PI Olivera BM, McIntosh JM, Watkins M, Garrett JE, Cruz LJ;

XX Grille M, Walker CS, Shetty R, Jones RM, Schoenfeld RM;

DR MPI; 2002-706921/76.

XX New cone snail conotoxin peptides, useful as a pain reliever for  
 PT alleviating pain in an individual suffering from pain or who is about to  
 PT be subjected to a pain-causing event, or for treating voltage-gated ion  
 PT channel disorders.

XX Claim 1; Page 297; 305pp; English.

XX This invention describes novel conotoxin peptides from the cone snail,  
 CC genus Conus which have analgesic activity and can act as a voltage-gated  
 CC ion channel modulator or a ligand-gated ion channel modulator. The  
 CC conotoxin peptide is useful as a pain-relieving agent for alleviating  
 CC pain in an individual who is either exhibiting pain or is about to be  
 CC subjected to a pain-causing event. The conotoxin peptide is also useful  
 CC for treating or preventing disorders associated with voltage-gated ion  
 CC channel disorders. Ligand-gated ion channel disorders or receptor  
 CC disorders. The radiolabeled conotoxin peptide is also useful for  
 CC characterizing a new site on these receptors or channels, and for  
 CC screening and identifying novel small molecules that interact with the  
 CC above-mentioned channels or receptors, which are monoamine transporters.  
 CC ABG99360-ABG99853 represent the conotoxin protein and peptides described  
 CC in the disclosure of the invention

XX Sequence 13 AA;

QY 90.9%; Score 80; DB 5; Length 13;  
 Best Local Similarity 84.6%; Pred. No. 0.0014;  
 Matches 11; Conservative 2; Mismatches 0; Indels 0; Gaps 0;



QY 1 ECCNPACGRHYSC 13  
 |||:||||:||||  
 DB 1 ECCHPACGRHYSC 13

## RESULT 26

ID ABG99617 standard; protein; 37 AA.  
 XX ABG99617;

AC ABG99617;  
 XX  
 XX 17-JAN-2003 (first entry)

DE Conus sp conotoxin-associated protein SEQ ID 377.  
 XX

KW Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;  
 XX ligand-gated ion channel modulator; pain-relief.

OS Conus geographus.  
 XX

XX MO200264740-A2.  
 XX

XX 22-AUG-2002.  
 XX

XX 11-FEB-2002; 2002MO-US003887.  
 XX

XX 09-FEB-2001; 2001US-0267408P.  
 XX

XX (COGN-) COGNETIX INC.  
 XX (UTAH) UNIV UTAH RES FOUND.

PI Olivera BM, McIntosh JM, Watkins M, Garrett JE, Cruz LJ;  
 PT Grille M, Walker CS, Shetty R, Jones RM, Schoenfeld RM;  
 XX

XX WPI; 2002-706921/76.  
 XX N-PSDB; ABX04945.

PT New cone snail conotoxin peptides, useful as a pain reliever for  
 PT alleviating pain in an individual suffering from pain or who is about to  
 PT be subjected to a pain-causing event, or for treating voltage-gated ion  
 PT channel disorders.

XX Claim 1; Page 247; 305pp; English.

CC This invention describes novel conotoxin peptides from the cone snail,  
 CC genus Conus which have analgesic activity and can act as a voltage-gated  
 CC ion channel modulator or a ligand-gated ion channel modulator. The  
 CC conotoxin peptide is useful as a pain-relieving agent for alleviating  
 CC pain in an individual who is either exhibiting pain or is about to be  
 CC subjected to a pain-causing event. The conotoxin peptide is also useful  
 CC for treating or preventing disorders associated with voltage-gated ion  
 CC channel disorders, ligand-gated ion channel disorders or receptor  
 CC disorders. The radiolabeled conotoxin peptide is also useful for  
 CC characterizing a new site on these receptors or channels, and for  
 CC screening and identifying novel small molecules that interact with the  
 CC above-mentioned channels or receptors, which are monamine transporters.  
 CC ABG9360-ABG9983 represent the conotoxin protein and peptides described  
 CC in the disclosure of the invention

XX Sequence 37 AA;

Query Match 90.9%; Score 80; DB 5; Length 37;  
 Best Local Similarity 84.6%; Pred. No. 0.0032;  
 Matches 11; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
 |||:||||:||||  
 DB 23 ECCHPACGRHYSC 35

RESULT 27  
 AAP40329  
 ID AAP40329 standard; peptide; 13 AA.

XX AAP40329;  
 AC

DT 16-AUG-2002 (revised)  
 DT 30-JAN-1992 (first entry)

XX Sequence of conotoxin peptide GII.

KW Acetylcholine receptor; reversible immobilisation;  
 KW synaptic transmission inhibitor.

XX Conus geographus.  
 XX Synthetic.

XX Key Location/Qualifiers

FT Disulfide-bond 2..7  
 FT Modified-site /label= Cys-S(acetamido-methyl)  
 FT Modified-site 13 /label= Cys-S(acetamido-methyl)  
 FT /note= "bonded to NH2"

XX US4447356-A.  
 XX

XX 08-MAY-1984.  
 XX

XX 04-JUN-1982; 82US-00385125.  
 XX

XX 17-APR-1981; 81US-00255237.  
 XX

XX (OLIV/) OLIVERA B M.  
 XX

PI Olivera BM, Cruz LJ, Gray WR, Rivier JEF;  
 PT

XX WPI; 1984-133757/21.  
 XX

PT Conotoxin peptide(s) - useful for reversible immobilisation of muscles  
 PT and for detecting acetylcholine receptors.

XX Claim 4; Col 2; 10pp; English.

CC The peptides of the invention are potent inhibitors of synaptic  
 CC transmission at the neuromuscular junction while lacking inhibition of  
 CC either nerve or muscle action potential propagation. Their action is  
 CC freely reversible on dilution or removal of the peptides from the  
 CC affected muscle. The peptides are useful for reversible immobilisation of  
 CC a muscle or sp. of muscles in man and other vertebrates and they can be  
 CC used for detection and measurement of acetylcholine receptors. (Updated  
 CC on 16-AUG-2002 to add missing OS field.)

XX Sequence 13 AA;

Query Match 86.4%; Score 76; DB 1; Length 13;  
 Best Local Similarity 76.9%; Pred. No. 0.0044;  
 Matches 10; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
 |||:||||:||||  
 DB 1 ECCHPACGRHYSC 13

## RESULT 28

AAR75266  
 ID AAR75266 standard; peptide; 13 AA.

XX AAR75266;  
 AC

DT 21-DEC-1995 (first entry)

DE Alpha-conotoxin GII peptide.

KW Alpha conotoxin; neuromuscular; synapse; signal transmission.

OS Conus geographus.  
 XX  
 FH Key Location/Qualifiers  
 FT Peptide 1. 13  
 FT /note="core sequence contains 2 highly conserved  
 FT disulphide bonds; the precise locations are not given in  
 FT the specification"  
 FT Modified-site 13  
 FT /note="amidated"  
 PN W09511256-A1.  
 XX  
 XX 27-APR-1995.  
 PD  
 XX  
 XX 19-OCT-1994; 94MO-US011927.  
 PF  
 XX  
 PR 19-OCT-1993; 93US-00137800.  
 XX  
 XX (UTAH ) UNIV UTAH RES FOUND.  
 PA  
 XX  
 XX Olivera BM, Cruz LJ, Hillyard DR, McIntosh JM, Santos AD;  
 PI  
 XX WPI; 1995-170189/22.  
 DR  
 XX  
 XX New A-lineage conotoxin peptide(s) - which inhibit synaptic transmission  
 PT at the neuromuscular junction or are active against potassium or sodium  
 PT channels.  
 PS  
 XX Disclosure; Page 4; 66pp; English.  
 CC The kappa-conotoxin, alpha conotoxin and alpha-like conotoxin peptides  
 CC all belong to a group of peptides known as the A-lineage conotoxin  
 CC peptides. The A-lineage conotoxin peptides have a wide variety of  
 CC pharmacological uses. The A-lineage conotoxin peptides claimed (AAR75264-  
 CC R75293) are useful for the inhibition of synaptic transmission at  
 CC neuromuscular junctions by blocking nicotinic acetyl choline receptors  
 CC and they also have activity against voltage-gated Na and K channels  
 CC  
 XX Sequence 13 AA;  
 SQ  
 Query Match 86.4%; Score 76; DB 2; Length 13;  
 Best Local Similarity 76.9%; Pred. No. 0.0044; 0; Indels 0; Gaps 0;  
 Matches 10; Conservative 3; Mismatches 0;  
 QY 1 ECCNPACGRHYSC 13  
 |||:|||||:  
 Db 1 ECCHPACGRHFSC 13  
 RESULT 29  
 AAM12728  
 ID AAM12728 standard; peptide; 13 AA.  
 XX  
 AC AAM12728;  
 XX  
 DT 25-MAR-2003 (revised)  
 DT 16-APR-1997 (first entry)  
 XX  
 DE Alpha-conotoxin peptide GII.  
 XX  
 XX Polymerase chain reaction; PCR; primer; amplify; conotoxin; Conus;  
 KW inhibitor; synaptic transmission; neuromuscular junction; sodium channel;  
 KW nicotinic acetylcholine receptor; potassium channel; muscle relaxant;  
 KW myasthenia gravis; small cell lung cancer; therapy.  
 XX  
 OS Conus geographus.  
 XX  
 FH Key Location/Qualifiers  
 FT Modified-site 13  
 FT /note="amidated"  
 PD  
 XX US5589340-A.

PD 31-DEC-1996.  
 XX  
 XX 07-JUN-1995; 95US-00477383.  
 XX  
 XX 29-JUN-1993; 93US-00084848.  
 PR 19-OCT-1993; 93US-00137800.  
 XX  
 XX (UTAH ) UNIV UTAH RES FOUND.  
 PA  
 XX  
 XX Santos AD, Hillyard DR, McIntosh JM, Olivera BM, Cruz LJ;  
 PI  
 XX WPI; 1997-076840/07.  
 DR  
 XX  
 XX Identifying nucleic acid encoding A-lineage conotoxin peptide(s) by  
 PT amplification - uses primers corresponding to conserved regions in the  
 PT signal sequence and 3'-untranslated regions, useful e.g. in treatment of  
 PT small cell lung cancer.  
 PS  
 XX Disclosure; Col 3; 36pp; English.  
 CC AAM12726-W12769 represent conotoxin peptides. This sequence represents  
 CC the GII alpha-conotoxin peptide isolated from Conus geographus. These  
 CC sequences are identified using the method of the invention. The method of  
 CC the invention is for identifying DNA encoding A-lineage conotoxin  
 CC peptides by subjecting Conus nucleic acid to amplification with primer  
 CC sequences (see AAT59714 and AAT59715). The primers are specific for the  
 CC signal sequence and 3'-untranslated (3'UTR) regions of the conotoxin  
 CC gene, which are highly homologous between conotoxins, and are therefore  
 CC suitable sites for detection. A-lineage conotoxins include alpha-  
 CC conotoxins, and kappa-conotoxins. Alpha-conotoxins are powerful  
 CC inhibitors of synaptic transmission at the neuromuscular junction, and  
 CC are usually nicotinic acetylcholine receptor blockers. Kappa-conotoxins  
 CC act on the voltage sensitive sodium and potassium channels. The  
 CC conotoxins identified can be used as muscle relaxants, in the diagnosis  
 CC of myasthenia gravis, and for the treatment or diagnosis of small cell  
 CC lung cancer. For the treatment of small cell lung cancer, the conotoxin  
 CC peptides act by binding to the nicotinic receptors, and thereby blocking  
 CC the nicotine/cytosine stimulated release of the mitogen 5-  
 CC hydroxytryptamine. (Updated on 25-MAR-2003 to correct PF field.)  
 CC  
 XX Sequence 13 AA;  
 SQ  
 Query Match 86.4%; Score 76; DB 2; Length 13;  
 Best Local Similarity 76.9%; Pred. No. 0.0044; 0; Indels 0; Gaps 0;  
 Matches 10; Conservative 3; Mismatches 0;  
 QY 1 ECCNPACGRHYSC 13  
 |||:|||||:  
 Db 1 ECCHPACGRHFSC 13  
 RESULT 30  
 AAB15146  
 ID AAB15146 standard; protein; 59 AA.  
 XX  
 AC AAB15146;  
 XX  
 DT 12-MAR-2001 (first entry)  
 DT  
 XX  
 DE Alpha-conotoxin propeptide R1.2.  
 XX  
 XX Alpha-conotoxin; neuromuscular; nicotinic acetylcholine receptor;  
 KW neuromuscular blocking agent; muscle relaxant; anaesthesia;  
 KW benign essential blepharospasm; focal dystonia; anti-wrinkle agent.  
 XX  
 OS Conus sp.  
 XX  
 FH Key Location/Qualifiers  
 FT Modified-site 13  
 FT /note="amidated"  
 PD  
 XX 21-JAN-2000; 2000MO-US001372.  
 PF  
 XX

PR 22-JAN-1999; 99US-0116881P.  
 PR 22-JAN-1999; 99US-0116882P.  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 PA (COGN-) COGNETIX INC.  
 PI Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;  
 PI Jones RM;  
 XX  
 DR WPI; 2000-499215/44.  
 DR N-PSDB; AAAV4569.  
 XX  
 PT New alpha-conotoxin peptides, 10-25 residues in length, useful as  
 PT neuromuscular blocking agents (e.g. as muscle relaxants) during surgical  
 PT procedures requiring anesthesia and musculoskeletal relaxation.  
 XX  
 PS Example 4; Page 30; 95pp; English.  
 CC Alpha-conotoxins are small peptides, which are highly specific for  
 CC neuromuscular junction nicotinic acetylcholine receptors. The present  
 CC sequence is an alpha-conotoxin propeptide. The mature peptide of the  
 CC present sequence is useful as a neuromuscular blocking agent (e.g. as a  
 CC muscle relaxant) during surgical procedures requiring anesthesia and  
 CC musculoskeletal relaxation, for treating benign essential blepharospasm  
 CC and other forms of focal dystonia. The mature peptide of the present  
 CC peptide is also useful as an anti-wrinkle agent

Query Match 86.4%; Score 76; DB 3; Length 59;  
 Best Local Similarity 76.9%; Pred. No. 0.015;  
 Matches 10; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

OY 1 ECCNPACGRHSC 13  
 |||:||||:|  
 Db 45 ECCHPACGKHFC 57

RESULT 31  
 AA19742  
 ID AA19742 standard; protein; 59 AA.  
 XX

AC AA19742;

DT 31-MAY-2002 (first entry)

DE Conus radiatus R1.2 alpha-conotoxin protein.

XX Cone snail; neuromuscular blocking agent; muscle relaxation; cesarean;

KW muscle contraction; therapy; anaesthesia; musculoskeletal relaxation;

KW benign essential blepharospasm; focal dystonia; anti-wrinkle;

R1.2 alpha-conotoxin.

OS Conus radiatus.

PN WO200207750-A1.

PD 31-JAN-2002.

PF 20-JUL-2001; 2001WO-US022892.

PR 20-JUL-2000; 2000US-0219407P.

XX 28-JUL-2000; 2000US-0221557P.

XX (COGN-) COGNETIX INC.

PA (UTAH ) UNIV UTAH RES FOUND.

PI Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;

XX PI Schoenfeld R, Jones RM, Nielsen J;  
 DR WPI; 2002-217022/27.  
 DR N-PSDB; AAD31488.  
 XX

PT New alpha-conotoxin peptide analogs, useful as neuromuscular blocking  
 PT agents, particularly for providing muscle relaxation during cesarean  
 PT section or surgical procedures requiring anesthesia and musculoskeletal  
 PT relaxation.

XX Example 4; Page 30-31; 96pp; English.

CC The present invention relates to novel alpha-conotoxin peptides which are  
 CC naturally available in minute amounts in the venom of cone snails. The  
 CC invention also relates to alpha-conotoxin peptide analogues. The alpha-  
 CC conotoxin peptides are useful as neuromuscular blocking agents in  
 CC conjunction with surgery or for intubation of the trachea by conventional  
 CC parenteral administration. They are useful for providing muscle  
 CC relaxation during cesarean section procedures and hence minimize muscle  
 CC contraction. Peptides of the invention are useful for treating a patient  
 CC during surgical procedures requiring anaesthesia and musculo-skeletal  
 CC relaxation. They are useful as muscle relaxants for treating benign  
 CC essential blepharospasm and other forms of focal dystonia and for anti-  
 CC wrinkle use. The present sequence is Conus radiatus R1.2 alpha-conotoxin  
 CC protein

Seq Sequence 59 AA;  
 Query Match 86.4%; Score 76; DB 5; Length 59;  
 Best Local Similarity 76.9%; Pred. No. 0.015;  
 Matches 10; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

OY 1 ECCNPACGRHSC 13  
 |||:||||:|  
 Db 45 ECCHPACGKHFC 57

RESULT 32  
 ADJ71776  
 ID ADJ71776 standard; peptide; 15 AA.  
 XX

AC ADJ71776;

DT 06-MAY-2004 (first entry)

DE Exemplary alpha-conotoxin GI peptide.

XX cytostatic; analgesic; anticonvulsant; cerebroprotective;

KW antiparkinsonian; nootropic; neuroprotective; anti-HIV;

KW modulator of cell phenotype; gene therapy; peptide aptamer;

KW cell phenotype modification; peptide display library; cancer; pain;

KW epilepsy; stroke; Parkinson's disease; Alzheimer's disease;

KW Huntington's disease; multiple sclerosis; AIDS.

OS Synthetic.

PN WO2003040168-A2.

PD 15-MAY-2003.

PF 06-NOV-2002; 2002WO-US035584.

PR 06-NOV-2001; 2001US-033362P.

XX 14-FEB-2002; 2002US-0357278P.

XX (ENAN-) ENANTA PHARM INC.

PA Benson JD, Vincent SM, Braisher BB, Miao Z, Lamming D;

XX WPI; 2003-541418/51.

DR N-PSDB; ADJ71775.

XX Identifying peptide aptamer capable of modifying cell phenotype, by

PT selecting cell sample with library encoding random peptide aptamers,

PT selecting cell with altered phenotype, and identifying aptamers expressed

PT in cell.  
 XX Example 5; SEQ ID NO 32; 173pp; English.  
 PS

XX The invention relates to a method of identifying (MI) a peptide aptamer  
 CC (PA) capable of modifying a cell phenotype, involving contacting a 1st  
 CC sample of cells with a library of expressible nucleic acid sequences  
 CC encoding random peptide aptamers linked to a fusion moiety, selecting at  
 CC least one cell having an altered phenotype compared to the phenotype of  
 CC the cell prior to contacting, and identifying peptide aptamers expressed  
 CC in the selected cell. PA, its derivative or corresponding nucleic acid is  
 CC useful for the molecular modeling of an agent having similar binding  
 CC characteristics as PA. PA, its derivative or corresponding expressible  
 CC nucleic acid is useful for treating or inhibiting a disease or condition  
 CC (such as cancer) associated with an aberrant cell phenotype in a subject,  
 CC where the aberrant cell phenotype is associated with a change in levels  
 CC of apoptosis, viral resistance, signal transduction, protein trafficking,  
 CC cell adhesion, membrane transport, cell motility, metabolic state or  
 CC differentiation, when compared to a control cell, or the aberrant cell  
 CC phenotype is associated with a tumor cell. The expressible nucleic acid  
 CC is administered using a retrovirus that comprises a chromatin insulator  
 CC element. PA is useful as a prognostic or diagnostic tool, for altering a  
 CC cell phenotype, in gene therapy, as therapeutics for treating diseases  
 CC (such as pain, epilepsy, stroke, Parkinson's disease, Alzheimer's  
 CC disease, Huntington's disease, multiple sclerosis, AIDS), and for the  
 CC research and development of other therapeutics. This sequence represents  
 CC an alpha-conotoxin GI peptide.

XX Sequence 15 AA;

Query Match 85.2%; Score 75; DB 7; Length 15;  
 Best Local Similarity 100.0%; Pred. No. 0.0066;  
 Matches 11; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHY 11  
 |||||  
 DB 5 ECCNPACGRHY 15

RESULT 33

AAE19770 AAE19770 standard; peptide; 13 AA.

XX AAE19770;

DT 31-MAY-2002 (first entry)

XX MI alpha-conotoxin peptide analogue deesGI-MI [R2E, K10Q].

XX Cone snail; neuromuscular blocking agent; muscle relaxation; cesarean;

KW muscle contraction; therapy; anaesthesia; musculoskeletal relaxation;

KW benign essential blepharospasm; focal dystonia; anti-wrinkle;

XX MI alpha-conotoxin peptide.

OS Conus sp.

OS Synthetic.

XX Key

FT Misc-difference 11

FT /note= "This residue is given as Thr in the sequence

FT shown as SEQ ID NO: 110 in the sequence listing"

XX MO200207750-A1.

XX 31-JAN-2002.

XX 20-JUL-2001; 2001MO-US022892.

XX 20-JUL-2000; 2000US-0219407P.

XX 28-JUL-2000; 2000US-0221557P.

XX (COGN-) COGNETIX INC.

PA (UTAH ) UNIV UTAH RES FOUND.

PI Oliveira EM, Laver RT, Watkins M, Hillyard DR, McIntosh JM;

PI Schoenfeld R, Jones RM, Nielsen J;

XX MPI, 2002-217022/27.  
 DR New alpha-conotoxin peptide analogs, useful as neuromuscular blocking  
 XX agents, particularly for providing muscle relaxation during cesarean  
 PT section or surgical procedures requiring anesthesia and musculoskeletal  
 PT relaxation.

XX Claim 1; Page 38; 96pp; English.

XX The present invention relates to novel alpha-conotoxin peptides which are  
 CC naturally available in minute amounts in the venom of cone snails. The  
 CC invention also relates to alpha-conotoxin peptide analogues. The alpha-  
 CC conotoxin peptides are useful as neuromuscular blocking agents in  
 CC conjunction with surgery or for intubation of the trachea by conventional  
 CC parenteral administration. They are useful for providing muscle  
 CC relaxation during cesarean section procedures and hence minimise muscle  
 CC contraction. Peptides of the invention are useful for treating a patient  
 CC during surgical procedures requiring anaesthesia and musculo-skeletal  
 CC relaxation. They are useful as muscle relaxants for treating benign  
 CC essential blepharospasm and other forms of focal dystonia and for anti-  
 CC wrinkle use. The present sequence is MI alpha-conotoxin peptide analogue

XX Sequence 13 AA;

Query Match 81.8%; Score 72; DB 5; Length 13;  
 Best Local Similarity 76.9%; Pred. No. 0.014;  
 Matches 10; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
 |||||  
 DB 1 ECCNPACGRHYSC 13

RESULT 34

AAE19765 AAE19765 standard; peptide; 14 AA.

XX AAE19765;

DT 31-MAY-2002 (first entry)

XX MI alpha-conotoxin peptide analogue MI [H5N, K10Q].

XX Cone snail; neuromuscular blocking agent; muscle relaxation; cesarean;

KW muscle contraction; therapy; anaesthesia; musculoskeletal relaxation;

KW benign essential blepharospasm; focal dystonia; anti-wrinkle;

XX MI alpha-conotoxin peptide.

OS Conus sp.

OS Synthetic.

XX Key

FT Misc-difference 5

FT /note= "Wild type His substituted with Asn"

FT Misc-difference 10

FT /note= "Wild type Lys substituted with Gln"

FT Misc-difference 12

FT /note= "This residue is given as Thr in the sequence

FT shown as SEQ ID NO: 105 in the sequence listing"

XX MO200207750-A1.

XX 31-JAN-2002.

XX 20-JUL-2001; 2001MO-US022892.

XX 20-JUL-2000; 2000US-0219407P.

XX 28-JUL-2000; 2000US-0221557P.

XX (COGN-) COGNETIX INC.

PA (UTAH ) UNIV UTAH RES FOUND.

PI Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;  
 PI Schoenfeld R, Jones RM, Nielsen J;  
 DR WPI; 2002-217022/27.  
 PT New alpha-conotoxin peptide analogs, useful as neuromuscular blocking  
 PT agents, particularly for providing muscle relaxation during cesarean  
 PT section or surgical procedures requiring anesthesia and musculoskeletal  
 PT relaxation.  
 PS Claim 1; Page 38; 96pp; English.  
 XX  
 CC The present invention relates to novel alpha-conotoxin peptides which are  
 CC naturally available in minute amounts in the venom of cone snails. The  
 CC invention also relates to alpha-conotoxin peptide analogues. The alpha-  
 CC conotoxin peptides are useful as neuromuscular blocking agents in  
 CC conjunction with surgery or for intubation of the trachea by conventional  
 CC parenteral administration. They are useful for providing muscle  
 CC relaxation during cesarean section procedures and hence minimise muscle  
 CC contraction. Peptides of the invention are useful for treating a patient  
 CC during surgical procedures requiring anaesthesia and musculo-skeletal  
 CC relaxation. They are useful as muscle relaxants for treating benign  
 CC essential blepharospasm and other forms of focal dystonia and for anti-  
 CC wrinkle use. The present sequence is MI alpha-conotoxin peptide analogue  
 CC  
 SQ Sequence 14 AA;

Query Match 81.8%; Score 72; DB 5; Length 14;  
 Best Local Similarity 83.3%; Pred. No. 0.015;  
 Matches 10; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 2 CCNPACGRHSC 13  
 Db 3 CCNPACGQNSC 14

## RESULT 35

AAE19774  
 ID AAE19774 standard; peptide; 14 AA.

AC AAE19774;

DT 31-MAY-2002 (first entry)

DE MI alpha-conotoxin peptide analogue M[R2E, K10Q].

XX Cone snail; neuromuscular blocking agent; muscle relaxation; cesarean;  
 KM muscle contraction; therapy; anaesthesia; musculoskeletal relaxation;  
 KM benign essential blepharospasm; focal dystonia; anti-wrinkle;  
 KM MI alpha-conotoxin peptide.

OS Conus sp.  
 OS Synthetic.

XX Key { Location/Qualifiers

FT Misc-difference 2 /note= "Wild type Arg substituted with Glu"

FT Misc-difference 10 /note= "Wild type Lys substituted with Gln"

FT Misc-difference 12 /note= "This residue is given as Thr in the sequence  
 shown as SEQ ID NO: 114 in the sequence listing"

XX WO200207750-A1.

XX 31-JAN-2002.

PF 20-JUL-2001; 2001WO-US022892.

XX 20-JUL-2000; 2000US-0219407P.  
 PR 28-JUL-2000; 2000US-0221557P.

XX (COGN-) COGNETIX INC.  
 PA

PA (UTAH ) UNIV UTAH RES FOUND.

XX Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;  
 PI Schoenfeld R, Jones RM, Nielsen J;  
 DR WPI; 2002-217022/27.

XX New alpha-conotoxin peptide analogs, useful as neuromuscular blocking  
 PT agents, particularly for providing muscle relaxation during cesarean  
 PT section or surgical procedures requiring anesthesia and musculoskeletal  
 PT relaxation.  
 PS Claim 1; Page 38; 96pp; English.

XX  
 CC The present invention relates to novel alpha-conotoxin peptides which are  
 CC naturally available in minute amounts in the venom of cone snails. The  
 CC invention also relates to alpha-conotoxin peptide analogues. The alpha-  
 CC conotoxin peptides are useful as neuromuscular blocking agents in  
 CC conjunction with surgery or for intubation of the trachea by conventional  
 CC parenteral administration. They are useful for providing muscle  
 CC relaxation during cesarean section procedures and hence minimise muscle  
 CC contraction. Peptides of the invention are useful for treating a patient  
 CC during surgical procedures requiring anaesthesia and musculo-skeletal  
 CC relaxation. They are useful as muscle relaxants for treating benign  
 CC essential blepharospasm and other forms of focal dystonia and for anti-  
 CC wrinkle use. The present sequence is MI alpha-conotoxin peptide analogue  
 CC  
 SQ Sequence 14 AA;

Query Match 81.8%; Score 72; DB 5; Length 14;  
 Best Local Similarity 76.9%; Pred. No. 0.015;  
 Matches 10; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHSC 13  
 Db 2 ECCHPACGQNSC 14

## RESULT 36

AAB15148  
 ID AAB15148 standard; peptide; 37 AA.

AC AAB15148;

DT 12-MAR-2001 (first entry)

DE Alpha-conotoxin propeptide A1.7.

XX Alpha-conotoxin; neuromuscular; nicotinic acetylcholine receptor;  
 KM neuromuscular blocking agent; muscle relaxant; anaesthesia;  
 KM benign essential blepharospasm; focal dystonia; anti-wrinkle agent.

OS Conus sp.

XX WO200043409-A2.

XX 27-JUL-2000.

PF 21-JAN-2000; 2000WO-US001372.

XX 22-JAN-1999; 99US-0116881P.  
 PR 22-JAN-1999; 99US-0116882P.

XX (UTAH ) UNIV UTAH RES FOUND.

XX (COGN-) COGNETIX INC.

PI Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;  
 PI Jones RM;

XX WPI; 2000-499215/44.  
 DR N-PSDB; AAA74571.

XX New alpha-conotoxin peptides, 10-25 residues in length, useful as

PT neuromuscular blocking agents (e.g. as muscle relaxants) during surgical  
 PT procedures requiring anesthesia and musculoskeletal relaxation.  
 XX  
 PS Example 4; Page 31; 95pp; English.  
 XX  
 CC Alpha-conotoxins are small peptides, which are highly specific for  
 CC neuromuscular junction nicotinic acetylcholine receptors. The present  
 CC sequence is an alpha-conotoxin propeptide. The mature peptide of the  
 CC present sequence is useful as a neuromuscular blocking agent (e.g. as a  
 CC muscle relaxant) during surgical procedures requiring anesthesia and  
 CC musculoskeletal relaxation, for treating benign essential blepharospasm  
 CC and other forms of focal dystonia. The mature peptide of the present  
 CC peptide is also useful as an anti-wrinkle agent  
 CC  
 SQ Sequence 37 AA;  
 QY  
 Query Match 80.7%; Score 71; DB 3; Length 37;  
 Best Local Similarity 75.0%; Pred. No. 0.045; Mismatches 0; Gaps 0;  
 Matches 9; Conservative 3; Indels 0; Gaps 0;  
 DB 24 CCHPACGKHFSC 35  
 QY 2 CCNPACGRHNSC 13  
 ||:||||:|  
 DB 24 CCHPACGKHFSC 35  
 RESULT 37  
 AAE19744  
 ID AAE19744 standard; protein; 37 AA.  
 XX  
 AC AAE19744;  
 XX  
 DT 07-AUG-2003 (revised)  
 DT 31-MAY-2002 (first entry)  
 XX  
 DE Conus achatinus A1.7 alpha-conotoxin protein.  
 XX  
 KW Cone snail; neuromuscular blocking agent; muscle relaxation; cesarean;  
 KW muscle contraction; therapy; anesthesia; musculoskeletal relaxation;  
 KW benign essential blepharospasm; focal dystonia; anti-wrinkle;  
 KW A1.7 alpha-conotoxin.  
 XX  
 OS Conus sp.  
 XX  
 PN WO200207750-A1.  
 XX  
 PD 31-JAN-2002.  
 XX  
 PF 20-JUL-2001; 2001WO-US022892.  
 XX  
 PR 20-JUL-2000; 2000US-0219407P.  
 PR 28-JUL-2000; 2000US-0221557P.  
 XX  
 PA (COGN-) COGNETIX INC.  
 PA (UTAH) UNIV UTAH RES FOUND.  
 PI Oliveira BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;  
 PI Schoenfeld R, Jones RM, Nielsen J;  
 PI WPI: 2002-217022/27.  
 DR N-PSDB; AAD314490.  
 XX  
 PT New alpha-conotoxin peptide analogs, useful as neuromuscular blocking  
 PT agents, particularly for providing muscle relaxation during cesarean  
 PT section or surgical procedures requiring anesthesia and musculoskeletal  
 PT relaxation.  
 XX  
 PS Example 4; Page 31; 96pp; English.  
 CC The present invention relates to novel alpha-conotoxin peptides which are  
 CC naturally available in minute amounts in the venom of cone snails. The  
 CC invention also relates to alpha-conotoxin peptide analogues. The alpha-  
 CC conotoxin peptides are useful as neuromuscular blocking agents in  
 CC conjunction with surgery or for intubation of the trachea by conventional

CC parenteral administration. They are useful for providing muscle  
 CC relaxation during cesarean section procedures and hence minimize muscle  
 CC contraction. Peptides of the invention are useful for treating a patient  
 CC during surgical procedures requiring anesthesia and musculo-skeletal  
 CC relaxation. They are useful as muscle relaxants for treating benign  
 CC essential blepharospasm and other forms of focal dystonia and for anti-  
 CC wrinkle use. The present sequence is Conus achatinus A1.7 alpha-conotoxin  
 CC protein. (Updated on 07-AUG-2003 to correct OS field.)  
 CC  
 SQ Sequence 37 AA;  
 QY  
 Query Match 80.7%; Score 71; DB 5; Length 37;  
 Best Local Similarity 75.0%; Pred. No. 0.045; Mismatches 0; Gaps 0;  
 Matches 9; Conservative 3; Indels 0; Gaps 0;  
 DB 24 CCHPACGKHFSC 35  
 QY 2 CCNPACGRHNSC 13  
 ||:||||:|  
 DB 24 CCHPACGKHFSC 35  
 RESULT 38  
 AAB21447  
 ID AAB21447 standard; protein; 59 AA.  
 XX  
 AC AAB21447;  
 XX  
 DT 19-JAN-2001 (first entry)  
 DT  
 XX  
 DE Cone snail alpha-conotoxin SEQ ID NO: 101.  
 XX  
 KW Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.  
 XX  
 OS Conus consors.  
 XX  
 PN WO200044776-A1.  
 XX  
 PD 03-AUG-2000.  
 XX  
 PF 28-JAN-2000; 2000WO-US001979.  
 XX  
 PR 29-JAN-1999; 99US-0118381P.  
 XX  
 PA (UTAH) UNIV UTAH RES FOUND.  
 PA (COGN-) COGNETIX INC.  
 PI Watkins M, Oliveira BM, Hillyard DR, McIntosh JM, Jones RM;  
 PI WPI: 2000-505965/45.  
 DR N-PSDB; AAA89422.  
 XX  
 PT alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 PT e.g. as neuromuscular blocking agents for use in surgery and for treating  
 PT unipolar depression.  
 XX  
 PS Claim 39; Page 38; 229pp; English.  
 CC The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.  
 CC These peptides are found in minute quantities in the venom of the snails,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC disorders, urinary incontinence, nicotine addiction, mood disorders such  
 CC as bipolar disorder, unipolar depression, dysthymia and seasonal  
 CC affective disorder, and small cell lung carcinoma  
 CC  
 SQ Sequence 59 AA;

Query Match 80.7%; Score 71; DB 3; Length 59;  
 Best Local Similarity 75.0%; Pred. No. 0.066;  
 Matches 9; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 2 CCNPACGRHYS 13  
 ||:||||:|  
 DB 46 CCHPACGKHFS 57

RESULT 39  
 AAB15143

ID AAB15143 standard; protein; 59 AA.

XX AAB15143;

XX 12-MAR-2001 (first entry)

DE Alpha-conotoxin propeptide Cn1.1.

XX Alpha-conotoxin; neuromuscular; nicotinic acetylcholine receptor;

KW neuromuscular blocking agent; muscle relaxant; anaesthesia;

XX benign essential blepharospasm; focal dystonia; anti-wrinkle agent.

OS Conus sp.

XX MO200043409-A2.

XX 27-JUL-2000.

XX 21-JAN-2000; 2000MO-US001372.

XX 22-JAN-1999; 99US-0116881P.

XX 22-JAN-1999; 99US-0116882P.

XX (UTAH ) UNIV UTAH RES FOUND.

XX (COGN-) COGNETIX INC.

XX Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;

XX Jones RM;

XX WPI; 2000-499215/44.

XX N-PSDB; AAA74566.

XX New alpha-conotoxin peptides, 10-25 residues in length, useful as

PT neuromuscular blocking agents (e.g. as muscle relaxants) during surgical

PT procedures requiring anesthesia and musculoskeletal relaxation.

XX Example 4; Page 29; 95pp; English.

XX Alpha-conotoxins are small peptides, which are highly specific for

CC neuromuscular junction nicotinic acetylcholine receptors. The present

CC sequence is an alpha-conotoxin propeptide. The mature peptide of the

CC present sequence is useful as a neuromuscular blocking agent (e.g. as a

CC muscle relaxant) during surgical procedures requiring anaesthesia and

CC musculoskeletal relaxation, for treating benign essential blepharospasm

CC and other forms of focal dystonia. The mature peptide of the present

CC peptide is also useful as an anti-wrinkle agent

XX Sequence 59 AA;

Query Match 80.7%; Score 71; DB 3; Length 59;

Best Local Similarity 75.0%; Pred. No. 0.066;  
 Matches 9; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 2 CCNPACGRHYS 13  
 ||:||||:|  
 DB 46 CCHPACGKHFS 57

RESULT 40

AAB15142

ID AAB15142 standard; protein; 59 AA.

XX AAB15142;

XX 12-MAR-2001 (first entry)

DE Alpha-conotoxin propeptide Bcl.6.

XX Alpha-conotoxin; neuromuscular; nicotinic acetylcholine receptor;

KW neuromuscular blocking agent; muscle relaxant; anaesthesia;

XX benign essential blepharospasm; focal dystonia; anti-wrinkle agent.

OS Conus sp.

XX MO200043409-A2.

XX 27-JUL-2000.

XX 21-JAN-2000; 2000MO-US001372.

XX 22-JAN-1999; 99US-0116881P.

XX 22-JAN-1999; 99US-0116882P.

XX (UTAH ) UNIV UTAH RES FOUND.

XX (COGN-) COGNETIX INC.

XX Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;

XX Jones RM;

XX WPI; 2000-499215/44.

XX N-PSDB; AAA74566.

XX New alpha-conotoxin peptides, 10-25 residues in length, useful as

PT neuromuscular blocking agents (e.g. as muscle relaxants) during surgical

PT procedures requiring anesthesia and musculoskeletal relaxation.

XX Example 4; Page 29; 95pp; English.

XX Alpha-conotoxins are small peptides, which are highly specific for

CC neuromuscular junction nicotinic acetylcholine receptors. The present

CC sequence is an alpha-conotoxin propeptide. The mature peptide of the

CC present sequence is useful as a neuromuscular blocking agent (e.g. as a

CC muscle relaxant) during surgical procedures requiring anaesthesia and

CC musculoskeletal relaxation, for treating benign essential blepharospasm

CC and other forms of focal dystonia. The mature peptide of the present

CC peptide is also useful as an anti-wrinkle agent

XX Sequence 59 AA;

Query Match 80.7%; Score 71; DB 3; Length 59;

Best Local Similarity 75.0%; Pred. No. 0.066;  
 Matches 9; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 2 CCNPACGRHYS 13  
 ||:||||:|  
 DB 46 CCHPACGKHFS 57

RESULT 41  
 AAB15131

ID AAB15131 standard; protein; 59 AA.

XX AAB15131;

XX 12-MAR-2001 (first entry)

DE Alpha-conotoxin propeptide R1.

XX Alpha-conotoxin; neuromuscular; nicotinic acetylcholine receptor;

KW neuromuscular blocking agent; muscle relaxant; anaesthesia;

XX benign essential blepharospasm; focal dystonia; anti-wrinkle agent.

OS Conus sp.

PN WO200043409-A2.  
 XX 27-JUL-2000.  
 XX  
 PF 21-JAN-2000; 2000MO-US001372.  
 XX  
 PR 22-JAN-1999; 99US-0116881P.  
 XX 22-JAN-1999; 99US-0116882P.  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 XX (COGN-) COGNETIX INC.  
 PI Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;  
 XX Jones RM;  
 XX  
 DR MPI; 2000-499215/44.  
 DR N-PSDB; AAA74554.  
 XX  
 PT New alpha-conotoxin peptides, 10-25 residues in length, useful as  
 PT neuromuscular blocking agents (e.g. as muscle relaxants) during surgical  
 PT procedures requiring anesthesia and musculoskeletal relaxation.  
 XX  
 PS Example 4; Page 25-26; 95pp; English.  
 CC Alpha-conotoxins are small peptides, which are highly specific for  
 CC neuromuscular junction nicotinic acetylcholine receptors. The present  
 CC sequence is an alpha-conotoxin propeptide. The mature peptide of the  
 CC present sequence is useful as a neuromuscular blocking agent (e.g. as a  
 CC muscle relaxant) during surgical procedures requiring anesthesia and  
 CC musculoskeletal relaxation, for treating benign essential blepharospasm  
 CC and other forms of focal dystonia. The mature peptide of the present  
 CC peptide is also useful as an anti-wrinkle agent  
 CC  
 SQ Sequence 59 AA;  
 Query Match 80.7%; Score 71; DB 3; Length 59;  
 Best Local Similarity 75.0%; Pred. No. 0.066;  
 Matches 9; Conservative 3; Mismatches 0; Indels 0; Gaps 0;  
 QY 2 CCNPACGRHYS 13  
 DB 46 CCHPACGKHFS 57  
 RESULT 42  
 AAB15141  
 ID AAB15141 standard; protein; 59 AA.  
 AC AAB15141;  
 XX  
 XX 12-MAR-2001 (first entry)  
 DE Alpha-conotoxin propeptide A1.1.  
 XX  
 KM Alpha-conotoxin; neuromuscular; nicotinic acetylcholine receptor;  
 KM neuromuscular blocking agent; muscle relaxant; anaesthesia;  
 KM benign essential blepharospasm; focal dystonia; anti-wrinkle agent.  
 XX  
 OS Conus sp.  
 XX  
 PN WO200043409-A2.  
 XX  
 PD 27-JUL-2000.  
 XX  
 PF 21-JAN-2000; 2000MO-US001372.  
 XX  
 PR 22-JAN-1999; 99US-0116881P.  
 XX 22-JAN-1999; 99US-0116882P.  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 XX (COGN-) COGNETIX INC.  
 PI Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;

PI Jones RM;  
 XX  
 DR MPI; 2000-499215/44.  
 DR N-PSDB; AAA74554.  
 XX  
 PT New alpha-conotoxin peptides, 10-25 residues in length, useful as  
 PT neuromuscular blocking agents (e.g. as muscle relaxants) during surgical  
 PT procedures requiring anesthesia and musculoskeletal relaxation.  
 XX  
 PS Example 4; Page 28-29; 95pp; English.  
 CC Alpha-conotoxins are small peptides, which are highly specific for  
 CC neuromuscular junction nicotinic acetylcholine receptors. The present  
 CC sequence is an alpha-conotoxin propeptide. The mature peptide of the  
 CC present sequence is useful as a neuromuscular blocking agent (e.g. as a  
 CC muscle relaxant) during surgical procedures requiring anesthesia and  
 CC musculoskeletal relaxation, for treating benign essential blepharospasm  
 CC and other forms of focal dystonia. The mature peptide of the present  
 CC peptide is also useful as an anti-wrinkle agent  
 CC  
 SQ Sequence 59 AA;  
 Query Match 80.7%; Score 71; DB 3; Length 59;  
 Best Local Similarity 75.0%; Pred. No. 0.066;  
 Matches 9; Conservative 3; Mismatches 0; Indels 0; Gaps 0;  
 QY 2 CCNPACGRHYS 13  
 DB 46 CCHPACGKHFS 57  
 RESULT 43  
 AAB15133  
 ID AAB15133 standard; protein; 59 AA.  
 AC AAB15133;  
 XX  
 XX 12-MAR-2001 (first entry)  
 DE Alpha-conotoxin propeptide R1.4.  
 XX  
 KM Alpha-conotoxin; neuromuscular; nicotinic acetylcholine receptor;  
 KM neuromuscular blocking agent; muscle relaxant; anaesthesia;  
 KM benign essential blepharospasm; focal dystonia; anti-wrinkle agent.  
 XX  
 OS Conus sp.  
 XX  
 PN WO200043409-A2.  
 XX  
 PD 27-JUL-2000.  
 XX  
 PF 21-JAN-2000; 2000MO-US001372.  
 XX  
 PR 22-JAN-1999; 99US-0116881P.  
 XX 22-JAN-1999; 99US-0116882P.  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 XX (COGN-) COGNETIX INC.  
 PI Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;  
 XX Jones RM;  
 XX  
 DR MPI; 2000-499215/44.  
 DR N-PSDB; AAA74554.  
 XX  
 PT New alpha-conotoxin peptides, 10-25 residues in length, useful as  
 PT neuromuscular blocking agents (e.g. as muscle relaxants) during surgical  
 PT procedures requiring anesthesia and musculoskeletal relaxation.  
 XX  
 PS Example 4; Page 26; 95pp; English.  
 CC Alpha-conotoxins are small peptides, which are highly specific for  
 CC neuromuscular junction nicotinic acetylcholine receptors. The present



CC sequence is an alpha-conotoxin propeptide. The mature peptide of the  
 CC present sequence is useful as a neuromuscular blocking agent (e.g. as a  
 CC muscle relaxant) during surgical procedures requiring anaesthesia and  
 CC musculoskeletal relaxation, for treating benign essential blepharospasm  
 CC and other forms of focal dystonia. The mature peptide of the present  
 CC peptide is also useful as an anti-wrinkle agent

XX Sequence 59 AA;

Query Match 80.7%; Score 71; DB 3; Length 59;  
 Best Local Similarity 75.0%; Pred. No. 0.066;  
 Matches 9; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 2 CCNPACGRHSC 13  
 DB 46 CCHPACGKHFS 57

RESULT 44  
 AAB15144  
 ID AAB15144 standard; protein; 59 AA.

AC AAB15144;  
 DT 12-MAR-2001 (first entry)

XX Alpha-conotoxin propeptide Mm1.

XX Alpha-conotoxin; neuromuscular; nicotinic acetylcholine receptor;  
 KM neuromuscular blocking agent; muscle relaxant; anaesthesia;  
 KM benign essential blepharospasm; focal dystonia; anti-wrinkle agent.

OS Conus sp.

XX WO200043409-A2.

XX 27-JUL-2000.

XX 21-JAN-2000; 2000WO-US001372.

XX 22-JAN-1999; 99US-0116881P.

PR 22-JAN-1999; 99US-0116882P.

XX (UTAH) UNIV UTAH RES FOUND.

PA (COGN-) COGNETIX INC.

PI Olivera BM, Laver RT, Watkins M, Hillyard DR, McIntosh JM;

PI Jones RM;

DR WPI; 2000-499215/44.

DR N-PSDB; AAA74567.

XX New alpha-conotoxin peptides, 10-25 residues in length, useful as  
 PT neuromuscular blocking agents (e.g. as muscle relaxants) during surgical  
 PT procedures requiring anaesthesia and musculoskeletal relaxation.

XX Example 4; Page 29-30; 95pp; English.

XX Alpha-conotoxins are small peptides, which are highly specific for  
 CC neuromuscular junction nicotinic acetylcholine receptors. The present  
 CC sequence is an alpha-conotoxin propeptide. The mature peptide of the  
 CC present sequence is useful as a neuromuscular blocking agent (e.g. as a  
 CC muscle relaxant) during surgical procedures requiring anaesthesia and  
 CC musculoskeletal relaxation, for treating benign essential blepharospasm  
 CC and other forms of focal dystonia. The mature peptide of the present  
 CC peptide is also useful as an anti-wrinkle agent

XX Sequence 59 AA;

Query Match 80.7%; Score 71; DB 3; Length 59;  
 Best Local Similarity 75.0%; Pred. No. 0.066;  
 Matches 9; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 2 CCNPACGRHSC 13  
 DB 46 CCHPACGKHFS 57

RESULT 45  
 AAE19737  
 ID AAE19737 standard; protein; 59 AA.

AC AAE19737;

XX 07-AUG-2003 (revised)

DT 31-MAY-2002 (first entry)

XX Conus achatinus A1.1 alpha-conotoxin protein.

XX Cone snail; neuromuscular blocking agent; muscle relaxation; caesarean;  
 KM muscle contraction; therapy; anaesthesia; musculoskeletal relaxation;  
 KM benign essential blepharospasm; focal dystonia; anti-wrinkle;  
 KM A1.1 alpha-conotoxin.

OS Conus sp.

XX WO200207750-A1.

XX 31-JAN-2002.

XX 20-JUL-2001; 2001WO-US022892.

XX 20-JUL-2000; 2000US-0219407P.

PR 28-JUL-2000; 2000US-0221557P.

XX (COGN-) COGNETIX INC.

PA (UTAH) UNIV UTAH RES FOUND.

PI Olivera BM, Laver RT, Watkins M, Hillyard DR, McIntosh JM;

PI Schoenfeld R, Jones RM, Nielsen J;

DR WPI; 2002-217022/27.

DR N-PSDB; AAD31483.

XX New alpha-conotoxin peptide analogs, useful as neuromuscular blocking  
 PT agents, particularly for providing muscle relaxation during caesarean  
 PT section or surgical procedures requiring anaesthesia and musculoskeletal  
 PT relaxation.

XX Example 4; Page 29; 96pp; English.

XX The present invention relates to novel alpha-conotoxin peptides which are  
 CC naturally available in minute amounts in the venom of cone snails. The  
 CC invention also relates to alpha-conotoxin peptide analogues. The alpha-  
 CC conotoxin peptides are useful as neuromuscular blocking agents in  
 CC conjunction with surgery or for intubation of the trachea by conventional  
 CC parenteral administration. They are useful for providing muscle  
 CC relaxation during caesarean section procedures and hence minimise muscle  
 CC contraction. Peptides of the invention are useful for treating a patient  
 CC during surgical procedures requiring anaesthesia and musculo-skeletal  
 CC relaxation. They are useful as muscle relaxants for treating benign  
 CC essential blepharospasm and other forms of focal dystonia and for anti-  
 CC wrinkle use. The present sequence is Conus achatinus A1.1 alpha-conotoxin  
 CC protein. (Updated on 07-AUG-2003 to correct OS field.)

XX Sequence 59 AA;

Query Match 80.7%; Score 71; DB 5; Length 59;  
 Best Local Similarity 75.0%; Pred. No. 0.066;  
 Matches 9; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 2 CCNPACGRHSC 13  
 DB 46 CCHPACGKHFS 57

```

RESULT 46
AAE19740
ID AAE19740 standard; protein; 59 AA.
XX
XX AAE19740;
XX
XX 31-MAY-2002 (first entry)
XX
XX Conus monachus Mni alpha-conotoxin protein.
XX
XX Cone snail; neuromuscular blocking agent; muscle relaxation; cesarean;
XX muscle contraction; therapy; anaesthesia; musculoskeletal relaxation;
XX benign essential blepharospasm; focal dystonia; anti-wrinkle;
XX Mni alpha-conotoxin.
XX
XX Conus monachus.
XX
XX WQ00207750-A1.
XX
XX 31-JAN-2002.
XX
XX 20-JUL-2001; 2001WO-US022892.
XX
XX 20-JUL-2000; 2000US-0219407P.
XX
XX 28-JUL-2000; 2000US-0221557P.
XX
XX (COGN-) COGNETIX INC.
XX (UTAH) UNIV UTAH RES FOUND.
XX
XX Oliveira BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;
XX Schoenfeld R, Jones RM, Nielsen J;
XX WPI; 2002-217022/27.
XX
XX N-PSDB; AAD31486.
XX
XX New alpha-conotoxin peptide analogs, useful as neuromuscular blocking
XX agents, particularly for providing muscle relaxation during cesarean
XX section or surgical procedures requiring anesthesia and musculoskeletal
XX relaxation.
XX
XX Example 4; Page 30; 96pp; English.
XX
XX The present invention relates to novel alpha-conotoxin peptides which are
XX naturally available in minute amounts in the venom of cone snails. The
XX invention also relates to alpha-conotoxin peptide analogues. The alpha-
XX conotoxin peptides are useful as neuromuscular blocking agents in
XX conjunction with surgery or for intubation of the trachea by conventional
XX parenteral administration. They are useful for providing muscle
XX relaxation during cesarean section procedures and hence minimise muscle
XX contraction. Peptides of the invention are useful for treating a patient
XX during surgical procedures requiring anaesthesia and musculo- skeletal
XX relaxation. They are useful as muscle relaxants for treating benign
XX essential blepharospasm and other forms of focal dystonia and for anti-
XX wrinkle use. The present sequence is Conus monachus Mni alpha-conotoxin
XX protein
XX
XX Sequence 59 AA;
SQ
XX
XX Query Match 80.7%; Score 71; DB 5; Length 59;
XX Best Local Similarity 75.0%; Pred. No. 0.066;
XX Matches 9; Conservative 3; Mismatches 0; Indels 0; Gaps 0;
XX
XX 2 CCNPACGRHYS 13
XX ||:||||:|
XX 46 CCHPACGKHFS 57
XX
XX
XX RESULT 47
XX AAE19727
XX ID AAE19727 standard; protein; 59 AA.
XX
XX AC AAE19727;
XX

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XX
XX 31-MAY-2002 (first entry)
XX
XX Conus radiatus R1 alpha-conotoxin protein.
XX
XX Cone snail; neuromuscular blocking agent; muscle relaxation; cesarean;
XX muscle contraction; therapy; anaesthesia; musculoskeletal relaxation;
XX benign essential blepharospasm; focal dystonia; anti-wrinkle;
XX R1 alpha-conotoxin.
XX
XX Conus radiatus.
XX
XX WQ00207750-A1.
XX
XX 31-JAN-2002.
XX
XX 20-JUL-2001; 2001WO-US022892.
XX
XX 20-JUL-2000; 2000US-0219407P.
XX
XX 28-JUL-2000; 2000US-0221557P.
XX
XX (COGN-) COGNETIX INC.
XX (UTAH) UNIV UTAH RES FOUND.
XX
XX Oliveira BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;
XX Schoenfeld R, Jones RM, Nielsen J;
XX WPI; 2002-217022/27.
XX
XX N-PSDB; AAD31473.
XX
XX New alpha-conotoxin peptide analogs, useful as neuromuscular blocking
XX agents, particularly for providing muscle relaxation during cesarean
XX section or surgical procedures requiring anesthesia and musculoskeletal
XX relaxation.
XX
XX Example 4; Page 26; 96pp; English.
XX
XX The present invention relates to novel alpha-conotoxin peptides which are
XX naturally available in minute amounts in the venom of cone snails. The
XX invention also relates to alpha-conotoxin peptide analogues. The alpha-
XX conotoxin peptides are useful as neuromuscular blocking agents in
XX conjunction with surgery or for intubation of the trachea by conventional
XX parenteral administration. They are useful for providing muscle
XX relaxation during cesarean section procedures and hence minimise muscle
XX contraction. Peptides of the invention are useful for treating a patient
XX during surgical procedures requiring anaesthesia and musculo- skeletal
XX relaxation. They are useful as muscle relaxants for treating benign
XX essential blepharospasm and other forms of focal dystonia and for anti-
XX wrinkle use. The present sequence is Conus radiatus R1 alpha-conotoxin
XX protein
XX
XX Sequence 59 AA;
SQ
XX
XX Query Match 80.7%; Score 71; DB 5; Length 59;
XX Best Local Similarity 75.0%; Pred. No. 0.066;
XX Matches 9; Conservative 3; Mismatches 0; Indels 0; Gaps 0;
XX
XX 2 CCNPACGRHYS 13
XX ||:||||:|
XX 46 CCHPACGKHFS 57
XX
XX
XX RESULT 48
XX AAE19738
XX ID AAE19738 standard; protein; 59 AA.
XX
XX AC AAE19738;
XX
XX 31-MAY-2002 (first entry)
XX
XX Conus betulinus Bt 1.6 alpha-conotoxin protein.
XX
XX Cone snail; neuromuscular blocking agent; muscle relaxation; cesarean;
XX muscle contraction; therapy; anaesthesia; musculoskeletal relaxation;
XX

```

KW		benign essential blepharospasm; focal dystonia; anti-wrinkle;
KM	Bt 1.6 alpha-conotoxin.	
XX		
OS	Conus betulinus.	
PN	WC0200207750-A1.	
PD	31-JAN-2002.	
XX		
PZ	20-JUL-2001; 2001WO-USO22892.	
XX		
PR	20-JUL-2000; 2000US-0219407P.	
PR	28-JUL-2000; 2000US-0221557P.	
PA	(COGN-) COGNETIX INC.	
PA	(UTAH) UNIV UTAH RES FOUND.	
PI	Oliviera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM,	
PI	Schoenfeld R, Jones RM, Nielsen J,	
DR	WPI; 2002-217022/27.	
DR	N-PSDB; AAD31484.	
PT	New alpha-conotoxin peptide analogs, useful as neuromuscular blocking	
PT	agents, particularly for providing muscle relaxation during cesarean	
PT	section or surgical procedures requiring anesthesia and musculoskeletal	
XX	relaxation.	
XX		
PS	Example 4; Page 29; 96pp; English.	
CC	The present invention relates to novel alpha-conotoxin peptides which are	
CC	naturally available in minute amounts in the venom of cone snails. The	
CC	invention also relates to alpha-conotoxin peptide analogues. The alpha-	
CC	-conotoxin peptides are useful as neuromuscular blocking agents in	
CC	conjunction with surgery or for intubation of the trachea by conventional	
CC	parenteral administration. They are useful for providing muscle	
CC	relaxation during cesarean section procedures and hence minimise muscle	
CC	contraction. Peptides of the invention are useful for treating a patient	
CC	during surgical procedures requiring anesthesia and musculo-skeletal	
CC	relaxation. They are useful as muscle relaxants for treating benign	
CC	essential blepharospasm and other forms of focal dystonia and for anti-	
CC	wrinkle use. The present sequence is Conus betulinus Bt 1.6 alpha-	
CC	-conotoxin protein	
XX		
XX		
SQ	Sequence 59 AA;	
Query Match	80.7%; Score 71; DB 5; Length 59;	
Best Local Similarity	75.0%; Pred. No. 0.066; 0; Indels 0; Gaps 0;	
Matches	9; Conservative 3; Mismatches 0; Indels 0; Gaps 0;	
QY	2 CCNPACGRHYSC 13   :   :    Db 46 CCHPACGKHFGC 57	
RESULT 49		
AAB19739	standard; protein; 59 AA.	
ID AAE19739		
AAE19739;		
DT 31-MAY-2002	(first entry)	
XX		
DE	Conus consors Cn1.1 alpha-conotoxin protein.	
XX		
KX	Cone snail; neuromuscular blocking agent; muscle relaxation; cesarean;	
KM	muscle contraction; therapy; anaesthesia; musculoskeletal relaxation;	
KM	benign essential blepharospasm; focal dystonia; anti-wrinkle;	
XX	Cn1.1 alpha-conotoxin.	
XX		
OS	Conus consors.	
XX		
PN	WC0200207750-A1.	

```

PD 31-JAN-2002.
XX
XX 20-JUL-2001; 2001WO-US022892.
XX
XX 20-JUL-2000; 2000US-0219407P.
PR 28-JUL-2000; 2000US-0221557P.
XX
XX (COGN-) COGNETIX INC.
XX (UTAH ) UNIV UTAH RES FOUND.
XX
XX Olivera BM, Laver RT, Watkins M, Hillyard DR, McIntosh JM;
PI Schoenfeld R, Jones RM, Nielsen J;
XX
XX WPI; 2002-217022/27.
DR
DR N-PSDB; AAD31485.
XX
XX New alpha-conotoxin peptide analogs, useful as neuromuscular blocking
PT agents, particularly for providing muscle relaxation during cesarean
PT section or surgical procedures requiring anesthesia and musculoskeletal
PT relaxation.
XX
XX Example 4; Page 30; 96pp; English.
PS
XX The present invention relates to novel alpha-conotoxin peptides which are
CC naturally available in minute amounts in the venom of cone snails. The
CC invention also relates to alpha-conotoxin peptide analogues. The alpha-
CC conotoxin peptides are useful as neuromuscular blocking agents in
CC conjunction with surgery or for intubation of the trachea by conventional
CC parenteral administration. They are useful for providing muscle
CC relaxation during cesarean section procedures and hence minimise muscle
CC contraction. Peptides of the invention are useful for treating a patient
CC during surgical procedures requiring anaesthesia and musculo- skeletal
CC relaxation. They are useful as muscle relaxants for treating benign
CC essential blepharospasm and other forms of focal dystonia and for anti-
CC wrinkle use. The present sequence is Conus consors Cn1.1 alpha-conotoxin
CC protein
XX
XX Sequence 59 AA;
SQ
Query Match 80.7%; Score 71; DB 5; Length 59;
Best Local Similarity 75.0%; Pred. No. 0.066;
Matches 9; Conservative 3; Mismatches 0; Indels 0; Gaps 0;
QY 2 CCNPACGRHYS C 13
Db 46 CCHPACGKHFS C 57
RESULT 50
AAEI19729
ID AAE19729 standard; protein; 59 AA.
XX
XX AAE19729;
AC
XX
XX 31-MAY-2002 (first entry)
DT
XX
XX Conus radiatus R1.4 alpha-conotoxin protein.
DE
XX
XX Come snail; neuromuscular blocking agent; muscle relaxation; cesarean;
XX muscle contraction; therapy; anaesthesia; musculoskeletal relaxation;
KW benign essential blepharospasm; focal dystonia; anti-wrinkle;
KW R1.4 alpha-conotoxin; ds.
XX
XX Conus radiatus.
OS
XX
XX WO200207750-A1.
PN
XX 31-JAN-2002.
PD
XX
XX 20-JUL-2001; 2001WO-US022892.
PE
XX
XX 20-JUL-2000; 2000US-0219407P.
PR

```

PR 28-JUL-2000; 2000US-0221557P.

XX (COGN-) COGNETIX INC.  
PA (UTAH ) UNIV UTAH RES FOUND.  
XX

PI Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;  
PI Schoenfeld R, Jones RM, Nielsen J;

DR WPI; 2002-217022/27.  
N-PSDB; AAD31475.

XX  
PT New alpha-conotoxin peptide analogs, useful as neuromuscular blocking  
PT agents, particularly for providing muscle relaxation during cesarean  
PT section or surgical procedures requiring anesthesia and musculoskeletal  
PT relaxation.

PS Example 4; Page 27; 96pp; English.

CC The present invention relates to novel alpha-conotoxin peptides which are  
CC naturally available in minute amounts in the venom of cone snails. The  
CC invention also relates to alpha-conotoxin peptide analogues. The alpha-  
CC conotoxin peptides are useful as neuromuscular blocking agents in  
CC conjunction with surgery or for intubation of the trachea by conventional  
CC parenteral administration. They are useful for providing muscle  
CC relaxation during cesarean section procedures and hence minimise muscle  
CC contraction. Peptides of the invention are useful for treating a patient  
CC during surgical procedures requiring anaesthesia and musculo-skeletal  
CC relaxation. They are useful as muscle relaxants for treating benign  
CC essential blepharospasm and other forms of focal dystonia and for anti-  
CC wrinkle use. The present sequence is Conus radiatus R1.4 alpha-conotoxin  
CC protein

XX  
SQ Sequence 59 AA;

Query Match 80.7%; Score 71; DB 5; Length 59;

Best Local Similarity 75.0%; Pred. No. 0.066; Indels 0; Gaps 0;

Matches 9; Conservative 3; Mismatches 0;  
QY 2 CCNPACGRHYSC 13  
||:||||:|:  
Db 46 CCHPACGKHFS 57

Search completed: March 28, 2005, 16:39:29  
Job time : 36.6667 secs

GenCore version 5.1.6  
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# OM protein - protein search, using sw model

Run on: March 22, 2005, 22:44:17 ; Search time 42.0462 Seconds  
(without alignments)  
119.580 Million cell updates/sec

Title: US-09-787-082a-19

Perfect score: 88  
Sequence: 1 EGNPACGRHYS 13

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues  
Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : A\_Geneseq\_16Dec04:\*  
1: geneseqp1980s:\*  
2: geneseqp1990s:\*  
3: geneseqp2000s:\*  
4: geneseqp2001s:\*  
5: geneseqp2002s:\*  
6: geneseqp2003as:\*  
7: geneseqp2003bs:\*  
8: geneseqp2004s:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	88	100.0	13	1 AAP40326	AAP40326 Sequence
2	88	100.0	13	2 AAR75264	AAR75264 Alpha-con
3	88	100.0	13	2 AAW14604	AAW14604 Synthetic
4	88	100.0	13	2 AAW12726	AAW12726 Alpha-con
5	88	100.0	13	4 AAB92210	AAB92210 Toxin pep
6	88	100.0	13	7 ADJ71770	ADJ71770 Alpha-con
7	88	100.0	13	8 ADH23228	ADH23228 Antiviral
8	88	100.0	15	1 AAP40328	AAP40328 Sequence
9	88	100.0	15	2 AAR75265	AAR75265 Alpha-con
10	88	100.0	15	2 AAW12727	AAW12727 Alpha-con
11	88	100.0	59	3 AAB15129	AAB15129 Alpha-con
12	88	100.0	59	3 AAB15132	AAB15132 Alpha-con
13	88	100.0	59	3 AAB15138	AAB15138 Alpha-con
14	88	100.0	59	5 AAB19734	AAB19734 Conus geo
15	88	100.0	59	5 AAB19725	AAB19725 Conus geo
16	88	100.0	59	5 AAB19728	AAB19728 Conus rad
17	88	100.0	64	2 AAR38801	AAR38801 Conotoxin
18	88	100.0	64	2 AAR75296	AAR75296 Alpha-con
19	88	100.0	64	2 AAW12759	AAW12759 A-lineage
20	88	95.5	13	5 AAB19779	AAB19779 GI alpha-
21	84	95.5	13	5 AAB39809	AAB39809 Conus sp
22	84	95.5	59	5 AAB39619	AAB39619 Conus sp
23	83	94.3	13	5 AAB19780	AAB19780 GI alpha-
24	83	94.3	15	7 ADJ71772	ADJ71772 Exemplary
25	80	90.9	13	5 AAB39808	AAB39808 Conus sp

26	80	90.9	37	5 AAB39617	AAB39617 Conus sp
27	76	86.4	13	1 AAP40329	AAP40329 Sequence
28	76	86.4	13	2 AAR75266	AAR75266 Alpha-con
29	76	86.4	13	2 AAW12728	AAW12728 Alpha-con
30	76	86.4	59	5 AAB15146	AAB15146 Alpha-con
31	76	86.4	59	5 AAB19742	AAB19742 Conus rad
32	75	85.2	15	7 ADJ71776	ADJ71776 Exemplary
33	72	81.8	13	5 AAB19770	AAB19770 MI alpha-
34	72	81.8	14	5 AAB19765	AAB19765 MI alpha-
35	72	81.8	14	5 AAB19774	AAB19774 MI alpha-
36	71	80.7	37	5 AAB15148	AAB15148 Alpha-con
37	71	80.7	37	5 AAB19744	AAB19744 Conus snai
38	71	80.7	59	3 AAB21447	AAB21447 Conus snai
39	71	80.7	59	3 AAB15143	AAB15143 Alpha-con
40	71	80.7	59	3 AAB15142	AAB15142 Alpha-con
41	71	80.7	59	3 AAB15131	AAB15131 Alpha-con
42	71	80.7	59	3 AAB15141	AAB15141 Alpha-con
43	71	80.7	59	3 AAB15133	AAB15133 Alpha-con
44	71	80.7	59	3 AAB15144	AAB15144 Alpha-con
45	71	80.7	59	5 AAB19737	AAB19737 Conus ach

## ALIGNMENTS

RESULT 1	
ID AAP40326	AAP40326 standard, peptide, 13 AA.
XX	
AC AAP40326;	
XX	
DT 16-AUG-2002 (revised)	
DT 30-JAN-1992 (first entry)	
XX	
DE Sequence of conotoxin peptide GI.	
XX	
KW Acetylcholine receptor; reversible immobilisation;	
KW synaptic transmission inhibitor.	
XX	
OS Conus geographus.	
OS Synthetic.	
XX	
FT Key	Location/Qualifiers
FT Disulfide-bond	2..7
FT Modified-site	/label= Cys-S(acetamido-methyl)
FT Modified-site	13
FT	/label= Cys-S(acetamido-methyl)
FT	/note= "bonded to NH2"
XX	
XX US4447356-A.	
XX	
XX 08-MAY-1984.	
PD	
XX	
XX 04-JUN-1982; 82US-00385125.	
XX	
XX 17-APR-1981; 81US-00255237.	
XX	
XX (OLIV/) OLIVERA B M.	
XX	
XX OLIVERA BM, Cruz LJ, Gray WR, Rivier JRF;	
XX	
XX WPI, 1984-133757/21.	
XX	
XX Conotoxin peptide(s) - useful for reversible immobilisation of muscles	
XX and for detecting acetylcholine receptors.	
XX	
XX Claim 3; Col 13-14; 10pp; English.	
XX	
XX The peptides of the invention are potent inhibitors of synaptic	
XX transmission at the neuromuscular junction while lacking inhibition of	
XX either nerve or muscle action potential propagation. Their action is	
XX freely reversible on dilution or removal of the peptides from the	

CC affected muscle. The peptides are useful for reversible immobilization of  
 CC a muscle or sp. of muscles in man and other vertebrates and they can be  
 CC used for detection and measurement of acetylcholine receptors. (Updated  
 CC on 16-AUG-2002 to add missing OS field.)  
 XX

SO Sequence 13 AA;

Query Match 100.0%; Score 88; DB 1; Length 13;  
 Best Local Similarity 100.0%; Pred. No. 0.00013;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
 DB 1 ECCNPACGRHYSC 13

RESULT 2  
 AAR75264  
 ID AAR75264 standard; peptide; 13 AA.

AC AAR75264;

DT 21-DEC-1995 (first entry)

DE Alpha-conotoxin GI peptide.

XX Alpha-conotoxin; neuromuscular; synapse; signal transmission.

OS Consus geographus.

PH Key Location/Qualifiers

FT Peptide 1. 13

FT /note="core sequence contains 2 highly conserved  
 FT disulphide bonds; the precise locations are not given in  
 FT the specification"

FT Modified-site 13 /note="amidated"

XX WO9511256-A1.

XX PD 27-APR-1995.

XX PF 19-OCT-1994; 94MO-US011927.

XX PR 19-OCT-1993; 93US-00137800.

XX PA (UTAH ) UNIV UTAH RES FOUND.

XX PI Olivera BM, Cruz LJ, Hillyard DR, McIntosh JM, Santos AD;

XX DR WPI; 1995-170189/22.

XX PT New A-lineage conotoxin peptide(s) - which inhibit synaptic transmission  
 PT at the neuromuscular junction or are active against potassium or sodium  
 PT channels.

XX PS Disclosure; Page 4; 66pp; English.

XX CC The kappa-conotoxin, alpha conotoxin and alpha-like conotoxin peptides  
 CC all belong to a group of peptides known as the A-lineage conotoxin  
 CC peptides. The A lineage conotoxin peptides have a wide variety of  
 CC pharmacological uses. The A-lineage conotoxin peptides claimed (AAR75264-  
 CC R75293) are useful for the inhibition of synaptic transmission at  
 CC neuromuscular junctions by blocking nicotinic acetyl choline receptors  
 CC and they also have activity against voltage-gated Na and K channels

XX SQ Sequence 13 AA;

Query Match 100.0%; Score 88; DB 2; Length 13;  
 Best Local Similarity 100.0%; Pred. No. 0.00013;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13

DB 1 ECCNPACGRHYSC 13

RESULT 3  
 AAM14604  
 ID AAM14604 standard; peptide; 13 AA.

AC AAM14604;

DT 25-MAR-2003 (revised)

DT 11-DEC-1997 (first entry)

DE Synthetic conotoxin GI peptide.

XX Fusion protein; cleavage; eukaryote; enzyme; antibody; antigen;  
 XX antigenic variation; cell substrate adhesion.

OS Synthetic.

XX US5620923-A.

XX PD 15-APR-1997.

XX PF 03-APR-1992; 92US-00862737.

XX PR 12-OCT-1989; 89US-00420544.

XX PA (UTAH ) UNIV UTAH.

XX PI Rote KV, Wilkinson KD, Rechsteiner MC, Yoo Y;

XX DR WPI; 1997-235197/21.

XX PT Production of short peptide(s) - as ubiquitin fusion proteins for  
 XX cleavage by eukaryotic enzyme.

XX PS Disclosure; Col 8; 7pp; English.

XX CC A method has been developed for producing peptides comprising 2-40 amino  
 CC acid residues, where the N-terminal amino acid is not proline. The method  
 CC involves: (a) cloning a peptide-encoding synthetic oligonucleotide  
 CC downstream of a ubiquitin gene in a plasmid to obtain a plasmid encoding  
 CC a ubiquitin-peptide fusion protein; (b) transforming a bacterium with the  
 CC plasmid and inducing expression of the fusion protein; (c) recovering the  
 CC fusion protein from the bacterial cells; (d) subjecting the fusion  
 CC protein to the action of a eukaryotic enzyme that specifically cleaves  
 CC the amide bond between the C-terminal glycine of the ubiquitin and the N-  
 CC terminal amino acid of the peptide; and (e) separating the peptide from  
 CC free ubiquitin and any other proteins present. The present sequence  
 CC represents an amino acid sequence of a conotoxin GI peptide, prepared as  
 CC an ubiquitin-carboxyl terminal extended peptide to show that other  
 CC peptides may be synthesized by this method. Synthetic peptides are useful  
 CC as research tools, to generate antibodies, for assessing antigenic  
 CC variation, for studying antigen presentation, to disrupt cell-substrate  
 CC adhesion, to target proteins to specific cellular compartments, as model  
 CC systems in studies on the structure, folding or associations of proteins,  
 CC and for therapeutic or pharmacological purposes. (Updated on 25-MAR-2003  
 CC to correct PF field.)

XX SQ Sequence 13 AA;

Query Match 100.0%; Score 88; DB 2; Length 13;  
 Best Local Similarity 100.0%; Pred. No. 0.00013;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
 DB 1 ECCNPACGRHYSC 13

RESULT 4  
 AAM12726

ID AAM12726 standard; peptide; 13 AA.  
 XX AAM12726;  
 AC  
 XX  
 DT 25-MAR-2003 (revised)  
 DT 16-APR-1997 (first entry)  
 XX  
 DE Alpha-conotoxin peptide GI.  
 XX  
 XX Polymerase chain reaction; PCR; primer; amplify; conotoxin; Conus;  
 XX inhibitor; synaptic transmission; neuromuscular junction; sodium channel;  
 XX nicotinic acetylcholine receptor; potassium channel; muscle relaxant;  
 XX myasthenia gravis; small cell lung cancer; therapy.  
 OS  
 XX Conus geographus.  
 FH Key Location/Qualifiers  
 FT Modified-site 13 /note="amided"  
 FT  
 XX  
 XX US5589340-A.  
 XX  
 PD 31-DEC-1996.  
 XX  
 PF 07-JUN-1995; 95US-00477383.  
 XX  
 PR 29-JUN-1993; 93US-00084848.  
 PR 19-OCT-1993; 93US-00137800.  
 XX  
 XX (UTAH) UNIV UTAH RES FOUND.  
 XX  
 PI Santos AD, Hillyard DR, McIntosh JM, Olivera BM, Cruz LJ;  
 DR WPI; 1997-076840/07.  
 XX  
 PT Identifying nucleic acid encoding A-lineage conotoxin peptide(s) by  
 PT amplification - uses primers corresponding to conserved regions in the  
 PT signal sequence and 3'-untranslated regions, useful e.g. in treatment of  
 PT small cell lung cancer.  
 XX  
 XX Disclosure; Col 3; 36pp; English.  
 PS  
 XX AAM12726-W12769 represent conotoxin peptides. This sequence represents  
 CC the GI alpha-conotoxin peptide isolated from Conus geographus. These  
 CC sequences are identified using the method of the invention. The method of  
 CC the invention is for identifying DNA encoding A-lineage conotoxin  
 CC peptides by subjecting Conus nucleic acid to amplification with primer  
 CC sequences (see AAT59714 and AAT59715). The primers are specific for the  
 CC signal sequence and 3'-untranslated (3'UTR) regions of the conotoxin  
 CC gene, which are highly homologous between conotoxins, and are therefore  
 CC suitable sites for detection. A-lineage conotoxins include alpha-  
 CC conotoxins, and kappa-conotoxins. Alpha-conotoxins are powerful  
 CC inhibitors of synaptic transmission at the neuromuscular junction, and  
 CC are usually nicotinic acetylcholine receptor blockers. Kappa-conotoxins  
 CC act on the voltage sensitive sodium and potassium channels. The  
 CC conotoxins identified can be used as muscle relaxants, in the diagnosis  
 CC of myasthenia gravis, and for the treatment or diagnosis of small cell  
 CC lung cancer. For the treatment of small cell lung cancer, the conotoxin  
 CC peptides act by binding to the nicotinic receptors, and thereby blocking  
 CC the nicotinic/cytosine stimulated release of the mitogen 5-  
 CC hydroxytryptamine. (Updated on 25-MAR-2003 to correct PF field.)  
 XX  
 SQ Sequence 13 AA;  
 QY  
 Query Match 100.0%; Score 88; DB 2; Length 13;  
 Best Local Similarity 100.0%; Pred. No. 0.00013;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 DB 1 ECCNPACGRHYS 13  
 1 ECCNPACGRHYS 13

RESULT 5  
 AAB92210  
 ID AAB92210 standard; peptide; 13 AA.  
 XX AAB92210;  
 AC  
 XX  
 DT 22-JUN-2001 (first entry)  
 DT  
 XX  
 DE Toxin peptide SEQ ID NO:1386.  
 XX  
 XX Protection; endogenous therapeutic peptide; peptidase; conjugation;  
 XX blood component; modification; succinimidyl; maleimido group; amino;  
 XX hydroxyl; thiol; hormone; growth factor; neurotransmitter.  
 OS  
 XX Homo sapiens.  
 OS Synthetic.  
 XX  
 XX WO200069900-A2.  
 XX  
 PD 23-NOV-2000.  
 XX  
 PF 17-MAY-2000; 2000MO-US013576.  
 XX  
 PR 17-MAY-1999; 99US-0134406P.  
 PR 10-SEP-1999; 99US-0153406P.  
 PR 15-OCT-1999; 99US-0159783P.  
 XX  
 XX (CONJ) CONJUCHEM INC.  
 XX  
 PI Bridon DP, Ezrin AM, Milner PG, Holmes DL, Thibaudau K;  
 DR WPI; 2001-112059/12.  
 XX  
 PT Modifying and attaching therapeutic peptides to albumin prevents  
 PT peptidase degradation, useful for increasing length of in vivo activity.  
 XX  
 PS Disclosure; Page 650; 733pp; English.  
 XX  
 CC The present invention describes a modified therapeutic peptide (I)  
 CC comprising a therapeutically active amino acid region (III) and a  
 CC reactive group (II) (e.g. succinimidyl and maleimido groups) attached to  
 CC a less therapeutically active amino acid region (IV), which covalently  
 CC bonds with amino/hydroxyl/thiol groups on blood components to form a  
 CC peptidease stabilised therapeutic peptide composed of 3-50 amino acids.  
 CC (I) are useful for modifying therapeutic peptides e.g. hormones, growth  
 CC factors and neurotransmitters, to protect them from peptidase activity in  
 CC vivo for the treatment of various disorders. Endogenous therapeutic  
 CC peptides are not suitable as drug candidates as they require frequent  
 CC administration due to rapid degradation by peptidases in the body.  
 CC Modifying and attaching therapeutic peptides to albumin prevents or  
 CC reduces the action of peptidases to increase length of activity (half  
 CC life) and specificity as bonding to large molecules decreases  
 CC intracellular uptake and interference with physiological processes.  
 CC AAB90829 to AAB92441 represent peptides which can be used in the  
 CC exemplification of the present invention  
 XX  
 SQ Sequence 13 AA;  
 QY  
 Query Match 100.0%; Score 88; DB 4; Length 13;  
 Best Local Similarity 100.0%; Pred. No. 0.00013;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 DB 1 ECCNPACGRHYS 13  
 1 ECCNPACGRHYS 13  
 RESULT 6  
 ADJ71770  
 ID ADJ71770 standard; peptide; 13 AA.  
 XX ADJ71770;  
 AC  
 XX

DT	06-MAY-2004	(first entry)
XX	Alpha-conotoxin GI peptide.	
KW	cytostatic; analgesic; anticonvulsant; cerebroprotective;	
KW	anti-parkinsonian; nootropic; neuroprotective; anti-HIV;	
KW	modulator of cell phenotype; gene therapy; peptide aptamer;	
KW	cell phenotype modification; peptide display library; cancer; pain;	
KW	epilepsy; stroke; Parkinson's disease; Alzheimer's disease;	
KW	Huntington's disease; multiple sclerosis; AIDS.	
OS	Synthetic.	
PN	W02003040168-A2.	
XX	15-MAY-2003.	
PD	06-NOV-2002; 2002WO-US035584.	
PF	06-NOV-2001; 2001US-0333262P.	
XX	14-FEB-2002; 2002US-0357278P.	
PR	(ENAN-) ENANTA PHARM INC.	
XX	Benson JD, Vincent SM, Brasher BB, Miao Z, Lamming D;	
XX	WPI; 2003-541416/51.	
DR	Identifying peptide aptamer capable of modifying cell phenotype, by	
PT	contacting cell sample with library encoding random peptide aptamers,	
PT	selecting cell with altered phenotype, and identifying aptamers expressed	
PT	in cell.	
PS	Example 4; SEQ ID NO 26; 173bp; English.	
XX	The invention relates to a method of identifying (M1) a peptide aptamer	
CC	(PA) capable of modifying a cell phenotype, involving contacting a list	
CC	sample of cells with a library of expressible nucleic acid sequences	
CC	encoding random peptide aptamers linked to a fusion moiety, selecting at	
CC	least one cell having an altered phenotype compared to the phenotype of	
CC	the cell prior to contacting, and identifying peptide aptamers expressed	
CC	in the selected cell. PA, its derivative or corresponding nucleic acid is	
CC	useful for the molecular modelling of an agent having similar binding	
CC	characteristics as PA. PA, its derivative or corresponding expressible	
CC	nucleic acid is useful for treating or inhibiting a disease or condition	
CC	(such as cancer) associated with an aberrant cell phenotype in a subject,	
CC	where the aberrant cell phenotype is associated with a change in levels	
CC	of apoptosis, viral resistance, signal transduction, protein trafficking,	
CC	cell adhesion, membrane transport, cell motility, metabolic state or	
CC	differentiation, when compared to a control cell, or the aberrant cell	
CC	phenotype is associated with a tumor cell. The expressible nucleic acid	
CC	is administered using a retrovirus that comprises a chromatin insulator	
CC	element. PA is useful as a prognostic or diagnostic tool, for altering a	
CC	cell phenotype, in gene therapy, as therapeutics for treating diseases	
CC	(such as pain, epilepsy, stroke, Parkinson's disease, Alzheimer's	
CC	disease, Huntington's disease, multiple sclerosis, AIDS), and for the	
CC	research and development of other therapeutics. This sequence represents	
CC	an alpha-conotoxin GI peptide.	
XX		
XX		
SQ	Sequence 13 AA;	
Query Match	100.0%;	Score 88;
Best Local Similarity	100.0%;	DB 7;
Matches 13; Conservative	0;	Length 13;
	Mismatches 0;	Pred. No. 0.00013;
	Indels 0;	Gaps 0;
QY	1 ECNPNACGRHSC 13	
DB	1 ECNPNACGRHSC 13	

XX	AADH23228;
AC	
XX	
DT	11-MAR-2004 (first entry)
XX	
DE	Antiviral Connus conotoxin GI alpha peptide SeqID 180.
XX	
KW	conotoxin GI alpha; miniprotein ligand; antiviral; vaccine; flavivirus;
KM	virus; Japanese encephalitis; West Nile; dengue; yellow fever;
KV	tick-borne encephalitis; Kyasanur Forest disease;
/KM	OMSK haemorrhagic fever; Russian spring summer encephalitis;
,KM	central European tick-borne encephalitis; Alkurna.
OS	
XS	Conus.
XX	
FN	WO2003095477-A2.
XX	
PD	20-NOV-2003.
XX	
PF	17-MAR-2003; 2003WO-US008150.
XX	
PR	15-MAR-2002; 2002US-0365020P.
XX	
PA	(TEXA ) UNIV TEXAS SYSTEM.
XX	
PI	Fox RO, Barrett AD, Fan X, Holbrook MR;
XX	
DR	WPI; 2004-012084/01.
XX	
PT	New miniprotein ligand polypeptides useful for treating viral infections
PT	such as Kyasanur Forest disease, OMSK hemorrhagic fever, Russian spring
PT	summer encephalitis.
PS	
XX	Disclosure; SEQ ID NO 180, 124pp; English.
XX	
CC	This invention relates to novel miniprotein ligands that work to inhibit
CC	the activity of specific viruses. Specifically, it refers to a method for
CC	inhibiting viral activity by contacting the virus with a miniprotein
CC	ligand under preferred binding conditions to inhibit their propagation
CC	and prevent binding to the host cell. Note that these miniprotein ligands
CC	have antiviral activity and can be used in the development of novel
CC	vaccines. The present invention describes a method for the development of
CC	treatments for specific infections caused by viruses from the flavivirus
CC	family. In particular, these viruses are selected from Japanese
CC	encephalitis, West Nile, dengue, yellow fever and tick-borne encephalitis
CC	viruses such as Kyasanur Forest disease, OMSK haemorrhagic fever, Russian
CC	spring summer encephalitis, central European tick-borne encephalitis and
CC	Alkurna viruses. This peptide sequence is the Conus conotoxin GI alpha
CC	peptide, which provides a basis for the design of the miniprotein ligands
CC	of the invention.
XX	
SQ	Sequence 13 AA;
XX	
Query Match	100.0%; Score 88; DB 8; Length 13;
Best Local Similarity	100.0%; Pred. No. 0.00013;
Matches 13; Conservative	0; Mismatches 0; Indels 0; Gaps 0;
OY	1 ECNCNPACGRHYSC 13     
DB	1 ECNCNPACGRHYSC 13
RESULT 8	
AAP40328	
ID	AAP40328 standard; peptide; 15 AA.
XX	
AC	AAP40328;
XX	
DT	16-AUG-2002 (revised)
DT	30-JAN-1992 (first entry)
XX	
DE	Sequence of conotoxin peptide GIA.
XX	



KW Acetylcholine receptor; reversible immobilisation;  
 KW synaptic transmission inhibitor.

OS Conus geographus.  
 OS Synthetic.

XX Key Location/Qualifiers

FT Disulfide-bond 2. .7

FT Modified-site 3

FT /label= Cys-S(acetamido-methyl)

FT Modified-site 13

FT /label= Cys-S(acetamido-methyl)

FT Modified-site 15

FT /label= Lys-NH2

XX US4447356-A.

XX 08-MAY-1984.

XX 04-JUN-1982; 82US-00385125.

XX 17-APR-1981; 81US-00255237.

XX (OLIV/) OLIVERA B M.

XX Olivera BM, Cruz LJ, Gray WR, Rivier JEF;  
 XX WPI; 1984-133757/21.

XX Conotoxin peptide(s) - useful for reversible immobilisation of muscles  
 XX and for detecting acetylcholine receptors.

XX Claim 5; Col 2; 10pp; English.

XX The peptides of the invention are potent inhibitors of synaptic  
 CC transmission at the neuromuscular junction while lacking inhibition of  
 CC either nerve or muscle action potential propagation. Their action is  
 CC freely reversible on dilution or removal of the peptides from the  
 CC affected muscle. The peptides are useful for reversible immobilisation of  
 CC a muscle or gp. of muscles in man and other vertebrates and they can be  
 CC used for detection and measurement of acetylcholine receptors. (Updated  
 CC on 16-AUG-2002 to add missing OS field.)

XX Sequence 15 AA;

Query Match 100.0%; Score 88; DB 1; Length 15;

Best Local Similarity 100.0%; Pred. No. 0.00015;

Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13

DB 1 ECCNPACGRHYSC 13

RESULT 9

AAR75265  
 ID AAR75265 standard; peptide; 15 AA.

XX AAR75265;

XX 21-DEC-1995 (first entry)

XX Alpha-conotoxin GIA peptide.

XX Alpha conotoxin; inhibit; neuromuscular; synapse; signal transmission.  
 XX Conus geographus.

XX WO9511256-A1.

XX 27-APR-1995.

XX 19-OCT-1994; 94WO-US011927.

XX 19-OCT-1993; 93US-00137800.  
 XX (UTAH ) UNIV UTAH RES FOUND.

XX Olivera BM, Cruz LJ, Hillyard DR, McIntosh JM, Santos AD;  
 XX WPI; 1995-170189/22.

XX New A-lineage conotoxin peptide(s) - which inhibit synaptic transmission  
 XX at the neuromuscular junction or are active against potassium or sodium  
 XX channels.

XX Disclosure; Page 4; 66pp; English.

XX The kappa-conotoxin, alpha conotoxin and alpha-like conotoxin peptides  
 CC all belong to a group of peptides known as the A-lineage conotoxin  
 CC peptides. The A lineage conotoxin peptides have a wide variety of  
 CC pharmacological uses. The A-lineage conotoxin peptides claimed (AAR75264-  
 CC R75293) are useful for the inhibition of synaptic transmission at  
 CC neuromuscular junctions by blocking nicotinic acetyl choline receptors  
 CC and they also have activity against voltage-gated Na and K channels

XX Sequence 15 AA;

Query Match 100.0%; Score 88; DB 2; Length 15;

Best Local Similarity 100.0%; Pred. No. 0.00015;

Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13

DB 1 ECCNPACGRHYSC 13

RESULT 10

AAR75277

ID AAR75277 standard; peptide; 15 AA.

XX AAR75277;

XX 25-MAR-2003 (revised)

XX 16-APR-1997 (first entry)

XX Alpha-conotoxin peptide GIA.

XX Polymerase chain reaction; PCR; primer; amplify; conotoxin; Conus;  
 KW inhibitor; synaptic transmission; neuromuscular junction; sodium channel;  
 KW nicotinic acetylcholine receptor; potassium channel; muscle relaxant;  
 KW myasthenia gravis; small cell lung cancer; therapy.  
 XX Conus geographus.  
 XX US5589340-A.  
 XX 31-DEC-1996.  
 XX 07-JUN-1995; 95US-00477383.  
 XX 29-JUN-1993; 93US-00084848.  
 XX 19-OCT-1993; 93US-00137800.  
 XX (UTAH ) UNIV UTAH RES FOUND.  
 XX Santos AD, Hillyard DR, McIntosh JM, Olivera BM, Cruz LJ;  
 XX WPI; 1997-076840/07.

Identifying nucleic acid encoding A-lineage conotoxin peptide(s) by  
 PT amplification - uses primers corresponding to conserved regions in the  
 PT signal sequence and 3'-untranslated regions, useful e.g. in treatment of  
 PT small cell lung cancer.

XX Disclosure; Col 3; 36pp; English.

XX AAM12726-W12769 represent conotoxin peptides. This sequence represents  
 CC the GIA alpha-conotoxin peptide isolated from *Conus geographus*. These  
 CC sequences are identified using the method of the invention. The method of  
 CC the invention is for identifying DNA encoding A-lineage conotoxin  
 CC peptides by subjecting *Conus* nucleic acid to amplification with primer  
 CC sequences (see AAT59714 and AAT59715). The primers are specific for the  
 CC signal sequence and 3'-untranslated (3'UTR) regions of the conotoxin  
 CC gene, which are highly homologous between conotoxins, and are therefore  
 CC suitable sites for detection. A-lineage conotoxins include alpha-  
 CC conotoxins, and kappa-conotoxins. Alpha-conotoxins are powerful  
 CC inhibitors of synaptic transmission at the neuromuscular junction, and  
 CC are usually nicotinic acetylcholine receptor blockers. Kappa-conotoxins  
 CC act on the voltage sensitive sodium and potassium channels. The  
 CC conotoxins identified can be used as muscle relaxants, in the diagnosis  
 CC of myasthenia gravis, and for the treatment or diagnosis of small cell  
 CC lung cancer. For the treatment of small cell lung cancer, the conotoxin  
 CC peptides act by binding to the nicotinic receptors, and thereby blocking  
 CC the nicotine/cytosine stimulated release of the mitogen 5-  
 CC hydroxytryptamine. (Updated on 25-MAR-2003 to correct PF field.)  
 XX  
 XX Sequence 15 AA;

Query Match 100.0%; Score 88; DB 2; Length 15;  
 Best Local Similarity 100.0%; Pred. No. 0.00015;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
 |||||  
 DB 1 ECCNPACGRHYSC 13

## RESULT 11

AAB15129  
 ID AAB15129-standard; protein; 59 AA.

XX  
 AC AAB15129;  
 XX  
 DT 12-MAR-2001 (first entry)

DE Alpha-conotoxin propeptide GIB.

XX Alpha-conotoxin; neuromuscular; nicotinic acetylcholine receptor;  
 KW neuromuscular blocking agent; muscle relaxant; anaesthesia;  
 KW benign essential blepharospasm; focal dystonia; anti-wrinkle agent.

XX  
 OS *Conus* sp.

XX WO200043409-A2.

XX 27-JUL-2000.

XX 21-JAN-2000; 2000WO-US001372.

XX 22-JAN-1999; 99US-0116881P.

XX 22-JAN-1999; 99US-0116882P.

XX (UTAH ) UNIV UTAH RES FOUND.

PA (COGN-) COGNETIX INC.

XX Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;

PI Jones RM;

XX WPI; 2000-499215/44.

XX N-PSDB; AAA74552.

XX New alpha-conotoxin peptides, 10-25 residues in length, useful as  
 PT neuromuscular blocking agents (e.g. as muscle relaxants) during surgical  
 PT procedures requiring anesthesia and musculoskeletal relaxation.

XX Example 4; Page 25; 95pp; English.

XX Alpha-conotoxins are small peptides, which are highly specific for

CC neuromuscular junction nicotinic acetylcholine receptors. The present  
 CC sequence is an alpha-conotoxin propeptide. The mature peptide of the  
 CC present sequence is useful as a neuromuscular blocking agent (e.g. as a  
 CC muscle relaxant) during surgical procedures requiring anaesthesia and  
 CC musculoskeletal relaxation, for treating benign essential blepharospasm  
 CC and other forms of focal dystonia. The mature peptide of the present  
 CC peptide is also useful as an anti-wrinkle agent  
 XX

SQ Sequence 59 AA;

Query Match 100.0%; Score 88; DB 3; Length 59;  
 Best Local Similarity 100.0%; Pred. No. 0.00045;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
 |||||  
 DB 45 ECCNPACGRHYSC 57

## RESULT 12

AAB15132

ID AAB15132 standard; protein; 59 AA.

XX

AC AAB15132;

XX 12-MAR-2001 (first entry)

DE Alpha-conotoxin propeptide R1.3.

XX Alpha-conotoxin; neuromuscular; nicotinic acetylcholine receptor;  
 KW neuromuscular blocking agent; muscle relaxant; anaesthesia;  
 KW benign essential blepharospasm; focal dystonia; anti-wrinkle agent.

XX  
 OS *Conus* sp.

XX WO200043409-A2.

XX 27-JUL-2000.

XX 21-JAN-2000; 2000WO-US001372.

XX 22-JAN-1999; 99US-0116881P.

XX 22-JAN-1999; 99US-0116882P.

XX (UTAH ) UNIV UTAH RES FOUND.

PA (COGN-) COGNETIX INC.

XX Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JM;

PI Jones RM;

XX WPI; 2000-499215/44.

XX N-PSDB; AAA74555.

XX New alpha-conotoxin peptides, 10-25 residues in length, useful as  
 PT neuromuscular blocking agents (e.g. as muscle relaxants) during surgical  
 PT procedures requiring anesthesia and musculoskeletal relaxation.

XX Example 4; Page 26; 95pp; English.

XX Alpha-conotoxins are small peptides, which are highly specific for  
 CC neuromuscular junction nicotinic acetylcholine receptors. The present  
 CC sequence is an alpha-conotoxin propeptide. The mature peptide of the  
 CC present sequence is useful as a neuromuscular blocking agent (e.g. as a  
 CC muscle relaxant) during surgical procedures requiring anaesthesia and  
 CC musculoskeletal relaxation, for treating benign essential blepharospasm  
 CC and other forms of focal dystonia. The mature peptide of the present  
 CC peptide is also useful as an anti-wrinkle agent  
 XX

SQ Sequence 59 AA;

Query Match 100.0%; Score 88; DB 3; Length 59;  
 Best Local Similarity 100.0%; Pred. No. 0.00045;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```

QY      1 ECCNPACGRHYSC 13
Db      45 ECCNPACGRHYSC 57

RESULT 13
AAB15138
ID AAB15138 standard; protein; 59 AA.
XX
AC AAB15138;
DT 12-MAR-2001 (first entry)
XX
DE Alpha-conotoxin propeptide GIB.
XX
KW Alpha-conotoxin; neuromuscular; nicotinic acetylcholine receptor;
KW neuromuscular blocking agent; muscle relaxant; anaesthesia;
KW benign essential blepharospasm; focal dystonia; anti-wrinkle agent.
XX
OS Conus sp.
XX
PN WO200043409-A2.
XX
PD 27-JUL-2000.
XX
PF 21-JAN-2000; 2000WO-US001372.
XX
PR 22-JAN-1999; 99US-0116881P.
PR 22-JAN-1999; 99US-0116882P.
XX
PA (UTAH ) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JW;
PI Jones RM;
XX
DR WPI; 2000-499215/44.
DR N-PSDB; AAA74561.
XX
PT New alpha-conotoxin peptides, 10-25 residues in length, useful as
PT neuromuscular blocking agents (e.g. as muscle relaxants) during surgical
PT procedures requiring anesthesia and musculoskeletal relaxation.
XX
PS Example 4; Page 27; 95pp; English.
XX
CC Alpha-conotoxins are small peptides, which are highly specific for
CC neuromuscular junction nicotinic acetylcholine receptors. The present
CC sequence is an alpha-conotoxin propeptide. The mature peptide of the
CC present sequence is useful as a neuromuscular blocking agent (e.g. as a
CC muscle relaxant) during surgical procedures requiring anaesthesia and
CC musculoskeletal relaxation, for treating benign essential blepharospasm
CC and other forms of focal dystonia. The mature peptide of the present
CC peptide is also useful as an anti-wrinkle agent
XX
SQ Sequence 59 AA;
    Query Match          100.0%; Score 88; DB 3; Length 59;
    Best Local Similarity 100.0%; Pred. No. 0.00045;
    Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY      1 ECCNPACGRHYSC 13
Db      45 ECCNPACGRHYSC 57

RESULT 14
AAB19734
ID AAB19734 standard; protein; 59 AA.
XX
AC AAB19734;
XX
DT 31-MAY-2002 (first entry)
KW

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```

XX
DE Conus geographus GIB alpha-conotoxin protein.
XX
KW Cone snail; neuromuscular blocking agent; muscle relaxation; caesarean;
KW muscle contraction; therapy; anaesthesia; musculoskeletal relaxation;
KW benign essential blepharospasm; focal dystonia; anti-wrinkle;
KW GIB alpha-conotoxin.
XX
OS Conus geographus.
XX
PN WO200207750-A1.
XX
PD 31-JAN-2002.
XX
PF 20-JUL-2001; 2001WO-US022892.
XX
PR 20-JUL-2000; 2000US-0219407P.
PR 28-JUL-2000; 2000US-0221557P.
XX
PA (COGN-) COGNETIX INC.
PA (UTAH ) UNIV UTAH RES FOUND.
XX
PI Olivera BM, Layer RT, Watkins M, Hillyard DR, McIntosh JW;
PI Schoenfeld R, Jones RM, Nielsen J;
XX
DR WPI; 2002-217022/27.
DR N-PSDB; AAD31480.
XX
PT New alpha-conotoxin peptide analogs, useful as neuromuscular blocking
PT agents, particularly for providing muscle relaxation during caesarean
PT section or surgical procedures requiring anesthesia and musculoskeletal
PT relaxation.
XX
PS Example 4; Page 28; 96pp; English.
XX
CC The present invention relates to novel alpha-conotoxin peptides which are
CC naturally available in minute amounts in the venom of cone snails. The
CC invention also relates to alpha-conotoxin peptide analogues. The alpha-
CC conotoxin peptides are useful as neuromuscular blocking agents in
CC conjunction with surgery or for intubation of the trachea by conventional
CC parenteral administration. They are useful for providing muscle
CC relaxation during caesarean section procedures and hence minimise muscle
CC contraction. Peptides of the invention are useful for treating a patient
CC during surgical procedures requiring anaesthesia and musculo- skeletal
CC relaxation. They are useful as muscle relaxants for treating benign
CC essential blepharospasm and other forms of focal dystonia and for anti-
CC wrinkle use. The present sequence is Conus geographus GIB alpha-conotoxin
CC protein
XX
SQ Sequence 59 AA;
    Query Match          100.0%; Score 88; DB 5; Length 59;
    Best Local Similarity 100.0%; Pred. No. 0.00045;
    Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY      1 ECCNPACGRHYSC 13
Db      45 ECCNPACGRHYSC 57

RESULT 15
AAB19725
ID AAB19725 standard; protein; 59 AA.
XX
AC AAB19725;
XX
DT 31-MAY-2002 (first entry)
XX
DE Conus geographus GI alpha-conotoxin protein.
DE
KW Cone snail; neuromuscular blocking agent; muscle relaxation; caesarean;
KW muscle contraction; therapy; anaesthesia; musculoskeletal relaxation;
KW benign essential blepharospasm; focal dystonia; anti-wrinkle;
KW

```

KW GI alpha-conotoxin.  
XX  
OS Conus geographus.  
XX  
PN WO200207750-A1.  
XX  
PD 31-JAN-2002.  
XX  
PF 20-JUL-2001; 2001WO-US022892.  
XX  
PR 20-JUL-2000; 2000US-0219407P.  
PR 28-JUL-2000; 2000US-0221557P.  
XX  
PA (COGN-) COGNETIX INC.  
PA (UTAH ) UNIV UTAH RES FOUND.  
XX  
PI Olivera BM, Laver RT, Watkins M, Hillyard DR, McIntosh JM;  
PI Schoenfeld R, Jones RM, Nielsen J;  
XX  
DR WPI; 2002-217022/27.  
DR N-PSDB; AAD31471.  
XX  
PT New alpha-conotoxin peptide analogs, useful as neuromuscular blocking  
PT agents, particularly for providing muscle relaxation during cesarean  
PT section or surgical procedures requiring anesthesia and musculoskeletal  
PT relaxation.  
XX  
PS Example 4; Page 25; 96pp; English.  
XX  
CC The present invention relates to novel alpha-conotoxin peptides which are  
CC naturally available in minute amounts in the venom of cone snails. The  
CC invention also relates to alpha-conotoxin peptide analogues. The alpha-  
CC conotoxin peptides are useful as neuromuscular blocking agents in  
CC conjunction with surgery or for intubation of the trachea by conventional  
CC parenteral administration. They are useful for providing muscle  
CC relaxation during caesarean section procedures and hence minimise muscle  
CC contraction. Peptides of the invention are useful for treating a patient  
CC during surgical procedures requiring anaesthesia and musculo- skeletal  
CC relaxation. They are useful as muscle relaxants for treating benign  
CC essential blepharospasm and other forms of focal dystonia and for anti-  
CC wrinkle use. The present sequence is Conus geographus GI alpha-conotoxin  
CC protein  
XX  
SQ Sequence 59 AA;  
Query Match 100.0%; Score 88; DB 5; Length 59;  
Best Local Similarity 100.0%; Pred. No. 0.00045;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 ECCNPACGRHYSC 13  
Db 45 ECCNPACGRHYSC 57  
Search completed: March 23, 2005, 00:03:06  
Job time : 43.0462 secs

GenCore version 5.1.6  
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: March 22, 2005, 22:51:32; Search time 10.5116 Seconds  
(without alignments)  
92.321 Million cell updates/sec

Title: US-09-787-082A-19  
Perfect score: 88  
Sequence: 1 BCCNPACGRHYSC 13

Scoring table: BLOSUM62  
Gapop 10.0, Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database: Issued Patents AA:  
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2: /cgn2\_6/ptodata/1/1aa/5B\_COMB.pep:\*  
3: /cgn2\_6/ptodata/1/1aa/6A\_COMB.pep:\*  
4: /cgn2\_6/ptodata/1/1aa/6B\_COMB.pep:\*  
5: /cgn2\_6/ptodata/1/1aa/PCTUS\_COMB.pep:\*  
6: /cgn2\_6/ptodata/1/1aa/backfiles1.pep:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	88	100.0	13	1	US-07-689-693B-14
2	88	100.0	13	1	US-08-137-800-4
3	88	100.0	13	1	US-08-477-383-4
4	88	100.0	13	1	US-08-487-174-4
5	88	100.0	13	1	US-08-480-750-4
6	88	100.0	13	5	PCT-US96-07962-1
7	88	100.0	15	1	US-08-137-800-5
8	88	100.0	15	1	US-08-477-383-5
9	88	100.0	15	1	US-08-487-174-5
10	88	100.0	15	1	US-08-480-750-5
11	88	100.0	15	5	PCT-US96-07962-2
12	88	100.0	59	3	US-09-488-799-29
13	88	100.0	59	3	US-09-488-799-35
14	88	100.0	59	3	US-09-488-799-47
15	88	100.0	64	1	US-07-689-693B-13
16	88	100.0	64	1	US-08-137-800-36
17	88	100.0	64	1	US-08-137-800-45
18	88	100.0	64	1	US-08-477-383-36
19	88	100.0	64	1	US-08-477-383-45
20	88	100.0	64	1	US-08-487-174-36
21	88	100.0	64	1	US-08-487-174-45
22	88	100.0	64	1	US-08-480-750-36
23	88	100.0	64	1	US-08-480-750-45
24	76	86.4	13	1	US-08-137-800-6
25	76	86.4	13	1	US-08-477-383-6
26	76	86.4	13	1	US-08-487-174-6
27	76	86.4	13	1	US-08-480-750-6

28	76	86.4	13	5	PCT-US96-07962-3	Sequence 3, Appli
29	76	86.4	59	3	US-09-488-799-63	Sequence 63, Appli
30	71	80.7	37	3	US-09-488-799-67	Sequence 67, Appli
31	71	80.7	59	3	US-09-488-799-33	Sequence 33, Appli
32	71	80.7	59	3	US-09-488-799-37	Sequence 37, Appli
33	71	80.7	59	3	US-09-488-799-53	Sequence 53, Appli
34	71	80.7	59	3	US-09-488-799-55	Sequence 55, Appli
35	71	80.7	59	3	US-09-488-799-57	Sequence 57, Appli
36	71	80.7	59	3	US-09-488-799-59	Sequence 59, Appli
37	71	80.7	59	4	US-09-493-795B-101	Sequence 101, Appli
38	69	78.4	19	3	US-09-488-799-83	Sequence 83, Appli
39	68	77.3	14	1	US-08-137-800-7	Sequence 7, Appli
40	68	77.3	14	1	US-08-477-383-7	Sequence 7, Appli
41	68	77.3	14	1	US-08-487-174-7	Sequence 7, Appli
42	68	77.3	14	1	US-08-480-750-7	Sequence 7, Appli
43	68	77.3	14	5	PCT-US96-07962-4	Sequence 4, Appli
44	68	77.3	24	2	US-07-733-095B-20	Sequence 20, Appli
45	67	76.1	13	1	US-08-137-800-8	Sequence 8, Appli

## ALIGNMENTS

RESULT 1  
US-07-689-693B-14  
; Sequence 14, Application US/07689693B  
; Patent No. 5231011  
; GENERAL INFORMATION:  
; APPLICANT: David Hillyard  
; APPLICANT: Balomero M. Olivera  
; TITLE OF INVENTION: Segregated Folding Determinants  
; TITLE OF INVENTION: for Small Disulfide-Rich Peptides  
; NUMBER OF SEQUENCES: 25  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Thorpe, No. 5231011th & Western  
; STREET: 9035 South 700 East, Suite 200  
; CITY: Sandy  
; STATE: Utah  
; COUNTRY: USA  
; ZIP: 84070  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Diskette, 3.5 inch, 720 Kb storage  
; COMPUTER: Compaq LITE/286  
; OPERATING SYSTEM: DOS 4.01  
; SOFTWARE: Word Perfect 5.1  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/07/689,693B  
; FILING DATE: 19910418  
; CLASSIFICATION: 530  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: none  
; FILING DATE: na  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Western, M. Wayne  
; REGISTRATION NUMBER: 22,788  
; REFERENCE/DOCKET NUMBER: 9925  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (801) 566-6633  
; TELEFAX: (801) 566-0750  
; INFORMATION FOR SEQ ID NO: 14:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 13 amino acids  
; TYPE: AMINO ACID  
; TOPOLOGY: linear  
; MOLECULE TYPE: peptide  
; FEATURE:  
; NAME/KEY: GI Conotoxin  
; IDENTIFICATION METHOD: Direct peptide  
; IDENTIFICATION METHOD: sequencing of purified Conus geographus venom  
; US-07-689-693B-14

Query Match 100.0%; Score 88; DB 1; Length 13;  
Best Local Similarity 100.0%; Pred. No. 3.3e-05;

Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
Db 1 ECCNPACGRHYSC 13

## RESULT 2

US-08-137-800-4  
; Sequence 4, Application US/08137800  
; Patent No. 5514774  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Cruz, Lourdes J.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Santos, Ameurfino S.  
; TITLE OF INVENTION: Conotoxin Peptides  
; NUMBER OF SEQUENCES: 53  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
; STREET: 1201 New York Avenue N.W., Suite 1000  
; CITY: Washington  
; STATE: DC  
; ZIP: 20005

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: WordPerfect 5.1  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/137,800  
FILING DATE: 19-OCT-1993  
CLASSIFICATION: 530  
ATTORNEY/AGENT INFORMATION:  
NAME: Ihnen, Jeffrey L.  
REGISTRATION NUMBER: 28,957  
REFERENCE/DOCKET NUMBER: 24260-104763  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-962-4810  
TELEFAX: 202-962-8300  
INFORMATION FOR SEQ ID NO: 4:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 13 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ANTI-SENSE: NO  
ORIGINAL SOURCE:  
ORGANISM: Conus geographus

## US-08-137-800-4

Query Match 100.0%; Score 88; DB 1; Length 13;  
Best Local Similarity 100.0%; Pred. No. 3.3e-05;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
Db 1 ECCNPACGRHYSC 13

## RESULT 3

US-08-477-383-4  
; Sequence 4, Application US/08477383  
; Patent No. 5589340  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Cruz, Lourdes J.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: Macintosh, J. Michael  
; APPLICANT: Santos, Ameurfino S.  
; TITLE OF INVENTION: Conotoxin Peptides

NUMBER OF SEQUENCES: 59  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
STREET: 1201 New York Avenue, N.W., Suite 1000  
CITY: Washington  
STATE: DC  
COUNTRY: U.S.A.  
ZIP: 20005  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/477,383  
FILING DATE: 07-JUN-1995  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/137,800  
FILING DATE: 19-OCT-1993  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/084,848  
FILING DATE: 29-JUN-1993  
ATTORNEY/AGENT INFORMATION:  
NAME: Ihnen, Jeffrey L.  
REGISTRATION NUMBER: 28,957  
REFERENCE/DOCKET NUMBER: 24260-107673  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-962-4810  
TELEFAX: 202-962-8300  
INFORMATION FOR SEQ ID NO: 4:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 13 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
ORGANISM: Conus geographus  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 13  
OTHER INFORMATION: /note= "The C-terminus is  
OTHER INFORMATION: amidated."  
US-08-477-383-4

Query Match 100.0%; Score 88; DB 1; Length 13;  
Best Local Similarity 100.0%; Pred. No. 3.3e-05;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
Db 1 ECCNPACGRHYSC 13

## RESULT 4

US-08-487-174-4  
; Sequence 4, Application US/08487174  
; Patent No. 5595972  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Cruz, Lourdes J.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: Macintosh, J. Michael  
; APPLICANT: Santos, Ameurfino S.  
; TITLE OF INVENTION: Conotoxin Peptides  
; NUMBER OF SEQUENCES: 59  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
; STREET: 1201 New York Avenue, N.W., Suite 1000  
; CITY: Washington  
; STATE: DC

;/ COUNTRY: U.S.A.  
;/ ZIP: 20005  
;/ COMPUTER READABLE FORM:  
;/ MEDIUM TYPE: Floppy disk  
;/ OPERATING SYSTEM: PC-DOS/MS-DOS  
;/ SOFTWARE: PatentIn Release #1.0, Version #1.30  
;/ CURRENT APPLICATION DATA:  
;/ FILING DATE: 07-JUN-1995  
;/ APPLICATION NUMBER: US 08/487,174  
;/ CLASSIFICATION: 514  
;/ PRIOR APPLICATION DATA:  
;/ APPLICATION NUMBER: US 08/137,800  
;/ FILING DATE: 19-OCT-1993  
;/ PRIOR APPLICATION DATA:  
;/ APPLICATION NUMBER: US 08/084,848  
;/ FILING DATE: 29-JUN-1993  
;/ ATTORNEY/AGENT INFORMATION:  
;/ NAME: Ihnen, Jeffrey L.  
;/ REGISTRATION NUMBER: 28,957  
;/ REFERENCE/DOCKET NUMBER: 24260-107673  
;/ TELECOMMUNICATION INFORMATION:  
;/ TELEPHONE: 202-962-4810  
;/ TELEFAX: 202-962-8300  
;/ INFORMATION FOR SEQ ID NO: 4:  
;/ SEQUENCE CHARACTERISTICS:  
;/ LENGTH: 13 amino acids  
;/ TYPE: amino acid  
;/ STRANDEDNESS:  
;/ TOPOLOGY: linear  
;/ MOLECULE TYPE: peptide  
;/ HYPOTHETICAL: NO  
;/ ORIGINAL SOURCE:  
;/ ORGANISM: Conus geographus  
;/ FEATURE:  
;/ NAME/KEY: Modified-site  
;/ LOCATION: 13  
;/ OTHER INFORMATION: /note= "The C-terminus is  
;/ OTHER INFORMATION: amidated."  
;/ US-08-487-174-4

Query Match 100.0%; Score 88; DB 1; Length 13;  
Best Local Similarity 100.0%; Pred. No. 3.3e-05;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYS 13  
Db 1 ECCNPACGRHYS 13

RESULT 5  
US-08-480-750-4  
; Sequence 4, Application US/08480750  
; Patent No. 5633347  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Cruz, Lourdes J.  
; APPLICANT: Hilliard, David R.  
; APPLICANT: Macintosh, J. Michael  
; APPLICANT: Santos, Ameurfin S.  
; TITLE OF INVENTION: Conotoxin Peptides  
; NUMBER OF SEQUENCES: 59  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
; STREET: 1201 New York Avenue, N.W., Suite 1000  
; CITY: Washington  
; STATE: DC  
; COUNTRY: U.S.A.  
; ZIP: 20005  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS

;/ SOFTWARE: PatentIn Release #1.0, Version #1.30  
;/ CURRENT APPLICATION DATA:  
;/ APPLICATION NUMBER: US/08/480,750  
;/ FILING DATE: 07-JUN-1995  
;/ CLASSIFICATION: 530  
;/ PRIOR APPLICATION DATA:  
;/ APPLICATION NUMBER: US 08/137,800  
;/ FILING DATE: 19-OCT-1993  
;/ PRIOR APPLICATION DATA:  
;/ APPLICATION NUMBER: US 08/084,848  
;/ FILING DATE: 29-JUN-1993  
;/ ATTORNEY/AGENT INFORMATION:  
;/ NAME: Ihnen, Jeffrey L.  
;/ REGISTRATION NUMBER: 28,957  
;/ REFERENCE/DOCKET NUMBER: 24260-107673  
;/ TELECOMMUNICATION INFORMATION:  
;/ TELEPHONE: 202-962-4810  
;/ TELEFAX: 202-962-8300  
;/ INFORMATION FOR SEQ ID NO: 4:  
;/ SEQUENCE CHARACTERISTICS:  
;/ LENGTH: 13 amino acids  
;/ TYPE: amino acid  
;/ STRANDEDNESS:  
;/ TOPOLOGY: linear  
;/ MOLECULE TYPE: Peptide  
;/ HYPOTHETICAL: NO  
;/ ORIGINAL SOURCE:  
;/ ORGANISM: Conus geographus  
;/ FEATURE:  
;/ NAME/KEY: Modified-site  
;/ LOCATION: 13  
;/ OTHER INFORMATION: /note= "The C-terminus is  
;/ OTHER INFORMATION: amidated."  
;/ US-08-480-750-4

Query Match 100.0%; Score 88; DB 1; Length 13;  
Best Local Similarity 100.0%; Pred. No. 3.3e-05;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYS 13  
Db 1 ECCNPACGRHYS 13

RESULT 6  
PCT-US96-07962-1  
; Sequence 1, Application PC/TUS9607962  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; TITLE OF INVENTION: Use of Conotoxin Peptides U002 and MTI  
; NUMBER OF SEQUENCES: 10  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
; STREET: 1201 New York Avenue, N.W., Suite 1000  
; CITY: Washington  
; STATE: DC  
; COUNTRY: U.S.A.  
; ZIP: 20005  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: MS-WINDOWS  
; SOFTWARE: Word 6.0  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: PCT/US96/07962  
; FILING DATE: 04-JUN-1996  
; CLASSIFICATION:  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/487,174  
; FILING DATE: 07-JUN-1995  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 202-962-4810

TELEFAX: 202-962-8300  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 13 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
ORGANISM: Conus geographus  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 13  
OTHER INFORMATION: /note= "The C-terminus is  
OTHER INFORMATION: amidated."  
PCT-US96-07962-1

Query Match 100.0%; Score 88; DB 5; Length 13;  
Best Local Similarity 100.0%; Pred. No. 3.3e-05;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
DB 1 ECCNPACGRHYSC 13

## RESULT 7

US-08-137-800-5  
Sequence 5, Application US/08137800  
Patent No. 5514774  
GENERAL INFORMATION:  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: Cruz, Lourdes J.  
APPLICANT: Hillyard, David R.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Santos, Ameurfin D.  
TITLE OF INVENTION: Conotoxin Peptides  
NUMBER OF SEQUENCES: 53  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
STREET: 1201 New York Avenue N.W., Suite 1000  
CITY: Washington  
STATE: DC  
ZIP: 20005  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: WordPerfect 5.1  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/137,800  
FILING DATE: 19-OCT-1993  
CLASSIFICATION: 530  
ATTORNEY/AGENT INFORMATION:  
NAME: Ihnen, Jeffrey L.  
REGISTRATION NUMBER: 28,957  
REFERENCE/DOCKET NUMBER: 24260-104763  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-962-8300  
TELEFAX: 202-962-8300  
INFORMATION FOR SEQ ID NO: 5:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 15 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ANTI-SENSE: NO  
ORIGINAL SOURCE:  
ORGANISM: Conus geographus  
US-08-137-800-5

Query Match 100.0%; Score 88; DB 1; Length 15;  
Best Local Similarity 100.0%; Pred. No. 3.7e-05;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
DB 1 ECCNPACGRHYSC 13

## RESULT 8

US-08-477-383-5  
Sequence 5, Application US/08477383  
Patent No. 5589340  
GENERAL INFORMATION:  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: Cruz, Lourdes J.  
APPLICANT: Hillyard, David R.  
APPLICANT: Macintosh, J. Michael  
APPLICANT: Santos, Ameurfin S.  
TITLE OF INVENTION: Conotoxin Peptides  
NUMBER OF SEQUENCES: 59  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
STREET: 1201 New York Avenue, N.W., Suite 1000  
CITY: Washington  
STATE: DC  
COUNTRY: U.S.A.  
ZIP: 20005  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/477,383  
FILING DATE: 07-JUN-1995  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/137,800  
FILING DATE: 19-OCT-1993  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/084,848  
FILING DATE: 29-JUN-1993  
ATTORNEY/AGENT INFORMATION:  
NAME: Ihnen, Jeffrey L.  
REGISTRATION NUMBER: 28,957  
REFERENCE/DOCKET NUMBER: 24260-107673  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-962-4810  
TELEFAX: 202-962-8300  
INFORMATION FOR SEQ ID NO: 5:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 15 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
ORGANISM: Conus geographus  
US-08-477-383-5

Query Match 100.0%; Score 88; DB 1; Length 15;  
Best Local Similarity 100.0%; Pred. No. 3.7e-05;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
DB 1 ECCNPACGRHYSC 13

## RESULT 9

US-08-487-174-5



Sequence 5, Application US/08487174  
Patent No. 5595972  
GENERAL INFORMATION:  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: Cruz, Lourdes J.  
APPLICANT: Hilliard, David R.  
APPLICANT: Macintosh, J. Michael  
APPLICANT: Santos, Aneurfino S.  
TITLE OF INVENTION: Conotoxin Peptides  
NUMBER OF SEQUENCES: 59  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
STREET: 1201 New York Avenue, N.W., Suite 1000  
CITY: Washington  
STATE: DC  
COUNTRY: U.S.A.  
ZIP: 20005  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08487,174  
FILING DATE: 07-JUN-1995  
CLASSIFICATION: 514  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/137,800  
FILING DATE: 19-OCT-1993  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/084,848  
FILING DATE: 29-JUN-1993  
ATTORNEY/AGENT INFORMATION:  
NAME: Ihnen, Jeffrey L.  
REGISTRATION NUMBER: 28,957  
REFERENCE/DOCKET NUMBER: 24260-107673  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-962-4810  
TELEFAX: 202-962-8300  
INFORMATION FOR SEQ ID NO: 5:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 15 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
ORGANISM: Conus geographus  
US-08-487-174-5  
Query Match 100.0%; Score 88; DB 1; Length 15;  
Best Local Similarity 100.0%; Pred. No. 3.7e-05;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 ECCNPACGRHYSC 13  
Db 1 ECCNPACGRHYSC 13  
RESULT 10  
US-08-480-750-5  
Sequence 5, Application US/08480750  
Patent No. 5633347  
GENERAL INFORMATION:  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: Cruz, Lourdes J.  
APPLICANT: Hilliard, David R.  
APPLICANT: Macintosh, J. Michael  
APPLICANT: Santos, Aneurfino S.  
TITLE OF INVENTION: Conotoxin Peptides  
NUMBER OF SEQUENCES: 59  
CORRESPONDENCE ADDRESS:

ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
STREET: 1201 New York Avenue, N.W., Suite 1000  
CITY: Washington  
STATE: DC  
COUNTRY: U.S.A.  
ZIP: 20005  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08480,750  
FILING DATE: 07-JUN-1995  
CLASSIFICATION: 530  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/137,800  
FILING DATE: 19-OCT-1993  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/084,848  
FILING DATE: 29-JUN-1993  
ATTORNEY/AGENT INFORMATION:  
NAME: Ihnen, Jeffrey L.  
REGISTRATION NUMBER: 28,957  
REFERENCE/DOCKET NUMBER: 24260-107673  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-962-4810  
TELEFAX: 202-962-8300  
INFORMATION FOR SEQ ID NO: 5:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 15 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
ORGANISM: Conus geographus  
US-08-480-750-5  
Query Match 100.0%; Score 88; DB 1; Length 15;  
Best Local Similarity 100.0%; Pred. No. 3.7e-05;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 ECCNPACGRHYSC 13  
Db 1 ECCNPACGRHYSC 13  
RESULT 11  
PCT-US96-07962-2  
Sequence 2, Application PC/TUS9607962  
GENERAL INFORMATION:  
APPLICANT: University of Utah Research Foundation  
TITLE OF INVENTION: Use of Conotoxin Peptides 0002 and MTI  
NUMBER OF SEQUENCES: 10  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
STREET: 1201 New York Avenue, N.W., Suite 1000  
CITY: Washington  
STATE: DC  
COUNTRY: U.S.A.  
ZIP: 20005  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: MS-WINDOWS  
SOFTWARE: Word 6.0  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: PCT/US96/07962  
FILING DATE: 04-JUN-1996  
CLASSIFICATION:

;  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/487,174  
; FILING DATE: 07-JUN-1995  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 202-962-4810  
; TELEFAX: 202-962-8300  
; INFORMATION FOR SEQ ID NO: 2:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 15 amino acids  
; TYPE: amino acid  
; STRANDEDNESS:  
; TOPOLOGY: linear  
; MOLECULE TYPE: peptide  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; ORGANISM: Conus geographus  
; PCT-US96-07962-2

Query Match 100.0%; Score 88; DB 5; Length 15;  
Best Local Similarity 100.0%; Pred. No. 3.7e-05;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
| | | | | | | | | | | | | | |  
DB 1 ECCNPACGRHYSC 13

## RESULT 12

US-09-488-799-29  
; Sequence 29, Application US/09488799  
; Patent No. 6268473  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Layer, Richard T.  
; APPLICANT: Watkins, Maren  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Schoenfeld, Robert  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha Conotoxin Peptides  
; FILE REFERENCE: Alphas 1  
; CURRENT APPLICATION NUMBER: US/09/488,799  
; EARLIER FILING DATE: 2000-01-21  
; EARLIER APPLICATION NUMBER: 60/116,881  
; EARLIER FILING DATE: 1999-01-22  
; EARLIER APPLICATION NUMBER: 60/116,882  
; EARLIER FILING DATE: 1999-01-22  
; NUMBER OF SEQ ID NOS: 101  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 29  
; LENGTH: 59  
; TYPE: PRT  
; ORGANISM: Conus geographus  
US-09-488-799-29

Query Match 100.0%; Score 88; DB 3; Length 59;  
Best Local Similarity 100.0%; Pred. No. 0.00012;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
| | | | | | | | | | | | | | |  
DB 45 ECCNPACGRHYSC 57

## RESULT 13

US-09-488-799-35  
; Sequence 35, Application US/09488799  
; Patent No. 6268473  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Layer, Richard T.  
; APPLICANT: Watkins, Maren  
; APPLICANT: Hillyard, David R.

;  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Schoenfeld, Robert  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha Conotoxin Peptides  
; FILE REFERENCE: Alphas 1  
; CURRENT APPLICATION NUMBER: US/09/488,799  
; CURRENT FILING DATE: 2000-01-21  
; EARLIER APPLICATION NUMBER: 60/116,881  
; EARLIER FILING DATE: 1999-01-22  
; EARLIER APPLICATION NUMBER: 60/116,882  
; EARLIER FILING DATE: 1999-01-22  
; NUMBER OF SEQ ID NOS: 101  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 35  
; LENGTH: 59  
; TYPE: PRT  
; ORGANISM: Conus radiatus  
US-09-488-799-35

Query Match 100.0%; Score 88; DB 3; Length 59;  
Best Local Similarity 100.0%; Pred. No. 0.00012;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
| | | | | | | | | | | | | | |  
DB 45 ECCNPACGRHYSC 57

## RESULT 14

US-09-488-799-47  
; Sequence 47, Application US/09488799  
; Patent No. 6268473  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Layer, Richard T.  
; APPLICANT: Watkins, Maren  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Schoenfeld, Robert  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha Conotoxin Peptides  
; FILE REFERENCE: Alphas 1  
; CURRENT APPLICATION NUMBER: US/09/488,799  
; CURRENT FILING DATE: 2000-01-21  
; EARLIER APPLICATION NUMBER: 60/116,881  
; EARLIER FILING DATE: 1999-01-22  
; EARLIER APPLICATION NUMBER: 60/116,882  
; EARLIER FILING DATE: 1999-01-22  
; NUMBER OF SEQ ID NOS: 101  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 47  
; LENGTH: 59  
; TYPE: PRT  
; ORGANISM: Conus geographus  
US-09-488-799-47

Query Match 100.0%; Score 88; DB 3; Length 59;  
Best Local Similarity 100.0%; Pred. No. 0.00012;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
| | | | | | | | | | | | | | |  
DB 45 ECCNPACGRHYSC 57

## RESULT 15

US-07-689-693B-13  
; Sequence 13, Application US/07689693B  
; Patent No. 5231011  
; GENERAL INFORMATION:  
; APPLICANT: David Hillyard  
; APPLICANT: Baldomero M. Olivera  
; TITLE OF INVENTION: Segregated Folding Determinants

;; TITLE OF INVENTION: for Small Disulfide-Rich Peptides  
;; NUMBER OF SEQUENCES: 25  
;; CORRESPONDENCE ADDRESS:  
;; ADDRESSEE: Thorpe, No. 5231011th & Western  
;; STREET: 9035 South 700 East, Suite 200  
;; CITY: Sandy  
;; STATE: Utah  
;; COUNTRY: USA  
;; ZIP: 84070  
;; COMPUTER READABLE FORM:  
;; MEDIUM TYPE: Diskette, 3.5 inch, 720 Kb storage  
;; COMPUTER: Compaq LTE/286  
;; OPERATING SYSTEM: DOS 4.01  
;; SOFTWARE: Word Perfect 5.1  
;; CURRENT APPLICATION DATA:  
;; APPLICATION NUMBER: US/07/689,693B  
;; FILING DATE: 19910418  
;; CLASSIFICATION: 530  
;; PRIOR APPLICATION DATA:  
;; APPLICATION NUMBER: none  
;; FILING DATE: na  
;; ATTORNEY/AGENT INFORMATION:  
;; NAME: Western, M. Wayne  
;; REGISTRATION NUMBER: 22,788  
;; REFERENCE/DOCKET NUMBER: 9925  
;; TELECOMMUNICATION INFORMATION:  
;; TELEPHONE: (801) 566-6633  
;; TELEFAX: (801) 566-0750  
;; INFORMATION FOR SEQ ID NO: 13:  
;; SEQUENCE CHARACTERISTICS:  
;; LENGTH: 64 amino acids  
;; TYPE: AMINO ACID  
;; TOPOLOGY: linear  
;; MOLECULE TYPE: peptide  
;; FEATURE:  
;; NAME/KEY: Prepropeptide sequence for two loop GI  
;; NAME/KEY: conotoxin from Conus geographus.  
;; IDENTIFICATION METHOD: Libraries were created  
;; IDENTIFICATION METHOD: using oligo-dt primed pUC13 vector  
US-07-689-693B-13

Query Match 100.0%; Score 88; DB 1; Length 64;  
Best Local Similarity 100.0%; Fred. No. 0.00013;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
Db 50 ECCNPACGRHYSC 62  
|||||

Search completed: March 23, 2005, 00:20:51  
Job time : 11.5116 secs

**This Page Blank (uspto)**

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OM protein - protein search, using sw model

Run on: March 22, 2005, 23:46:47 ; Search time 29.6469 Seconds

(without alignments)  
144.941 Million cell updates/sec

Title: US-09-787-082A-19

Perfect score: 88

Sequence: 1 ECCNPACGRHYSC 13

Scoring table:

BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1401741 seqs, 330541175 residues

Total number of hits satisfying chosen parameters: 1401741

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%  
Listing first 45 summaries

Database :

- 1: /cgn2\_6/ptodata/2/pubpaa/US07\_PUBCOMB.pep.\*  
2: /cgn2\_6/ptodata/2/pubpaa/PCT\_NEW\_PUB.pep.\*  
3: /cgn2\_6/ptodata/2/pubpaa/US06\_PUBCOMB.pep.\*  
4: /cgn2\_6/ptodata/2/pubpaa/US06\_PUBCOMB.pep.\*  
5: /cgn2\_6/ptodata/2/pubpaa/US07\_NEW\_PUB.pep.\*  
6: /cgn2\_6/ptodata/2/pubpaa/PCTUS\_PUBCOMB.pep.\*  
7: /cgn2\_6/ptodata/2/pubpaa/US08\_NEW\_PUB.pep.\*  
8: /cgn2\_6/ptodata/2/pubpaa/US08\_PUBCOMB.pep.\*  
9: /cgn2\_6/ptodata/2/pubpaa/US09A\_PUBCOMB.pep.\*  
10: /cgn2\_6/ptodata/2/pubpaa/US09B\_PUBCOMB.pep.\*  
11: /cgn2\_6/ptodata/2/pubpaa/US09C\_PUBCOMB.pep.\*  
12: /cgn2\_6/ptodata/2/pubpaa/US09\_NEW\_PUB.pep.\*  
13: /cgn2\_6/ptodata/2/pubpaa/US10A\_PUBCOMB.pep.\*  
14: /cgn2\_6/ptodata/2/pubpaa/US10B\_PUBCOMB.pep.\*  
15: /cgn2\_6/ptodata/2/pubpaa/US10C\_PUBCOMB.pep.\*  
16: /cgn2\_6/ptodata/2/pubpaa/US10D\_PUBCOMB.pep.\*  
17: /cgn2\_6/ptodata/2/pubpaa/US10\_NEW\_PUB.pep.\*  
18: /cgn2\_6/ptodata/2/pubpaa/US11\_NEW\_PUB.pep.\*  
19: /cgn2\_6/ptodata/2/pubpaa/US60\_NEW\_PUB.pep.\*  
20: /cgn2\_6/ptodata/2/pubpaa/US60\_PUBCOMB.pep.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	88	100.0	13	15	US-10-390-352A-180
2	88	100.0	13	17	US-10-833-951-26
3	88	100.0	59	10	US-09-908-741-29
4	88	100.0	59	10	US-09-908-741-35
5	88	100.0	59	10	US-09-908-741-47
6	84	95.5	13	14	US-10-072-602B-594
7	84	95.5	59	14	US-10-072-602B-380
8	83	94.3	15	17	US-10-833-951-28
9	83	94.3	15	17	US-10-833-951-344
10	80	90.9	13	14	US-10-072-602B-593
11	80	90.9	37	14	US-10-072-602B-377
12	76	86.4	59	10	US-09-908-741-63
13	75	85.2	13	10	US-09-908-741-119

14	75	85.2	15	17	US-10-833-951-32	Sequence 32, Appl
15	75	85.2	15	17	US-10-833-951-343	Sequence 343, App
16	74	84.1	13	10	US-09-908-741-120	Sequence 120, App
17	71	80.7	37	10	US-09-908-741-67	Sequence 67, Appl
18	71	80.7	59	10	US-09-908-741-33	Sequence 33, Appl
19	71	80.7	59	10	US-09-908-741-37	Sequence 37, Appl
20	71	80.7	59	10	US-09-908-741-53	Sequence 53, Appl
21	71	80.7	59	10	US-09-908-741-55	Sequence 55, Appl
22	71	80.7	59	10	US-09-908-741-57	Sequence 57, Appl
23	71	80.7	59	10	US-09-908-741-59	Sequence 59, Appl
24	71	80.7	59	10	US-10-895-372-101	Sequence 101, App
25	70	79.5	13	14	US-10-072-602B-381	Sequence 381, App
26	69	78.4	19	10	US-09-908-741-83	Sequence 83, Appl
27	67	76.1	59	10	US-09-908-741-31	Sequence 31, Appl
28	67	76.1	59	10	US-09-908-741-75	Sequence 75, Appl
29	66	75.0	14	10	US-09-908-741-43	Sequence 43, Appl
30	66	75.0	15	10	US-09-908-741-3	Sequence 3, Appl
31	65	73.9	13	17	US-10-833-951-33	Sequence 33, Appl
32	65	73.9	22	14	US-10-072-602B-597	Sequence 597, App
33	65	73.9	25	10	US-09-908-741-45	Sequence 45, Appl
34	65	73.9	37	10	US-09-908-741-65	Sequence 65, Appl
35	65	73.9	67	10	US-09-908-741-41	Sequence 41, Appl
36	65	73.9	67	14	US-10-072-602B-389	Sequence 389, App
37	64	72.7	22	14	US-10-072-602B-595	Sequence 595, App
38	64	72.7	59	10	US-09-908-741-39	Sequence 39, Appl
39	64	72.7	61	10	US-09-908-741-61	Sequence 61, Appl
40	64	72.7	67	14	US-10-072-602B-383	Sequence 383, App
41	63	71.6	13	10	US-09-908-741-110	Sequence 110, App
42	63	71.6	14	10	US-09-908-741-105	Sequence 105, App
43	63	71.6	14	10	US-09-908-741-112	Sequence 112, App
44	63	71.6	14	10	US-09-908-741-114	Sequence 114, App
45	63	71.6	37	10	US-09-908-741-69	Sequence 69, Appl

ALIGNMENTS

RESULT 1

US-10-390-352A-180  
; Sequence 180, Application US/10390352A  
; Publication No. US20040002582A1  
; GENERAL INFORMATION:  
; APPLICANT: Fox, Robert O.  
; APPLICANT: Barrett, Alan D.  
; APPLICANT: Fan, Xiuzhen  
; APPLICANT: Holbrook, Michael R.  
; TITLE OF INVENTION: MINIPROTEIN LIGANDS AND OTHER POLYPEPTIDES AND METHODS FOR MAKING  
; TITLE OF INVENTION: AND USING SAME  
; FILE REFERENCE: 026.00601 (BARR-AD-02A)  
; CURRENT APPLICATION NUMBER: US/10/390,352A  
; CURRENT FILING DATE: 2003-03-17  
; PRIOR APPLICATION NUMBER: 60/365,020  
; PRIOR FILING DATE: 2002-03-15  
; NUMBER OF SEQ ID NOS: 180  
; SOFTWARE: PatentIn version 3.2  
; SEQ ID NO 180  
; LENGTH: 13  
; TYPE: PRT  
; ORGANISM: Conus sp.  
US-10-390-352A-180

Query Match 100.0%; Score 88; DB 15; Length 13;  
Best Local Similarity 100.0%; Pred. No. 5.2e-05;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13

DB 1 ECCNPACGRHYSC 13

RESULT 2

US-10-833-951-26  
; Sequence 26, Application US/10833951

Publication No. US20050053970A1  
; GENERAL INFORMATION:  
; APPLICANT: BENSON, JOHN D.  
; APPLICANT: VINCENT, SYLVIE M.  
; APPLICANT: BRASHER, BRADLEY B.  
; APPLICANT: MIAO, ZHENWEI  
; APPLICANT: LAMMIN, DUDLEY  
; TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR IDENTIFYING PEPTIDE AP-TAMERS CAPABLE  
; FILE REFERENCE: 4014.1037 US2  
; CURRENT APPLICATION NUMBER: US/10/833,951  
; CURRENT FILING DATE: 2004-04-28  
; PRIOR APPLICATION NUMBER: PCT/US02/35584  
; PRIOR FILING DATE: 2002-11-06  
; PRIOR APPLICATION NUMBER: 60/357,278  
; PRIOR FILING DATE: 2002-02-14  
; PRIOR APPLICATION NUMBER: 60/333,262  
; PRIOR FILING DATE: 2001-11-06  
; NUMBER OF SEQ ID NOS: 346  
; SOFTWARE: PatentIn version 3.2  
; SEQ ID NO 26  
; LENGTH: 13  
; TYPE: PRT  
; ORGANISM: Artificial Sequence  
; FEATURE:  
; OTHER INFORMATION: Description of Artificial Sequence: Synthetic peptide  
US-10-833-951-26

Query Match 100.0%; Score 88; DB 17; Length 13;  
Best Local Similarity 100.0%; Pred. No. 5.2e-05;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
DB 1 ECCNPACGRHYSC 13

RESULT 3  
US-09-908-741-29  
; Sequence 29, Application US/09908741  
; Publication No. US20030050435A1  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Layer, Richard T.  
; APPLICANT: Watkins, Maren  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Schoenfeld, Robert  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Nielsen, Jake  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; FILE REFERENCE: Alpha CIP  
; CURRENT APPLICATION NUMBER: US/09/908,741  
; CURRENT FILING DATE: 2001-07-20  
; PRIOR APPLICATION NUMBER: US 60/116,881  
; PRIOR FILING DATE: 1999-01-22  
; PRIOR APPLICATION NUMBER: US 60/116,882  
; PRIOR FILING DATE: 1999-01-22  
; PRIOR APPLICATION NUMBER: US 09/488,799  
; PRIOR FILING DATE: 2000-01-21  
; PRIOR APPLICATION NUMBER: US 60/219,407  
; PRIOR FILING DATE: 2000-07-20  
; PRIOR APPLICATION NUMBER: US 60/221,557  
; PRIOR FILING DATE: 2000-07-28  
; NUMBER OF SEQ ID NOS: 125  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 29  
; LENGTH: 59  
; TYPE: PRT  
; ORGANISM: Conus geographus  
US-09-908-741-29

Query Match 100.0%; Score 88; DB 17; Length 13;  
Best Local Similarity 100.0%; Pred. No. 5.2e-05;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
DB 1 ECCNPACGRHYSC 13

RESULT 4  
US-09-908-741-35  
; Sequence 35, Application US/09908741  
; Publication No. US20030050435A1  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Layer, Richard T.  
; APPLICANT: Watkins, Maren  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Schoenfeld, Robert  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Nielsen, Jake  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; FILE REFERENCE: Alpha CIP  
; CURRENT APPLICATION NUMBER: US/09/908,741  
; CURRENT FILING DATE: 2001-07-20  
; PRIOR APPLICATION NUMBER: US 60/116,881  
; PRIOR FILING DATE: 1999-01-22  
; PRIOR APPLICATION NUMBER: US 60/116,882  
; PRIOR FILING DATE: 1999-01-22  
; PRIOR APPLICATION NUMBER: US 09/488,799  
; PRIOR FILING DATE: 2000-01-21  
; PRIOR APPLICATION NUMBER: US 60/219,407  
; PRIOR FILING DATE: 2000-07-20  
; PRIOR APPLICATION NUMBER: US 60/221,557  
; PRIOR FILING DATE: 2000-07-28  
; NUMBER OF SEQ ID NOS: 125  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 35  
; LENGTH: 59  
; TYPE: PRT  
; ORGANISM: Conus radiatus  
US-09-908-741-35

Query Match 100.0%; Score 88; DB 10; Length 59;  
Best Local Similarity 100.0%; Pred. No. 0.00018;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
DB 45 ECCNPACGRHYSC 57

RESULT 5  
US-09-908-741-47  
; Sequence 47, Application US/09908741  
; Publication No. US20030050435A1  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Layer, Richard T.  
; APPLICANT: Watkins, Maren  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Schoenfeld, Robert  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Nielsen, Jake  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; FILE REFERENCE: Alpha CIP  
US-09-908-741-47

Query Match 100.0%; Score 88; DB 10; Length 59;  
Best Local Similarity 100.0%; Pred. No. 0.00018;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
DB 45 ECCNPACGRHYSC 57

; CURRENT APPLICATION NUMBER: US/09/908,741  
; CURRENT FILING DATE: 2001-07-20  
; PRIOR APPLICATION NUMBER: US 60/116,881  
; PRIOR FILING DATE: 1999-01-22  
; PRIOR APPLICATION NUMBER: US 60/116,882  
; PRIOR FILING DATE: 1999-01-22  
; PRIOR APPLICATION NUMBER: US 09/488,799  
; PRIOR FILING DATE: 2000-01-21  
; PRIOR APPLICATION NUMBER: US 60/219,407  
; PRIOR FILING DATE: 2000-07-20  
; PRIOR APPLICATION NUMBER: US 60/221,557  
; PRIOR FILING DATE: 2000-07-28  
; NUMBER OF SEQ ID NOS: 125  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 47  
; LENGTH: 59  
; TYPE: PRT  
; ORGANISM: Conus geographus  
US-09-908-741-47

Query Match 100.0%; Score 88; DB 10; Length 59;  
Best Local Similarity 100.0%; Pred. No. 0.00018;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
DB 45 ECCNPACGRHYSC 57

## RESULT 6

US-10-072-602B-594  
; Sequence 594, Application US/10072602B  
; Publication No. US20030109670A1  
; GENERAL INFORMATION:

; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J, Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Cruz, Lourdes J.  
; APPLICANT: Grilley, Michelle  
; APPLICANT: Schoenfeld, Robert M.  
; APPLICANT: Walker, Craig  
; APPLICANT: Shetty, Reshma  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Cone Snail Peptides  
; FILE REFERENCE: 2314-249  
; CURRENT APPLICATION NUMBER: US/10/072,602B  
; CURRENT FILING DATE: 2002-02-11  
; PRIOR APPLICATION NUMBER: US 60/267,408  
; PRIOR FILING DATE: 2001-02-09  
; NUMBER OF SEQ ID NOS: 638  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 594  
; LENGTH: 13  
; TYPE: PRT  
; ORGANISM: Conus geographus  
US-10-072-602B-594

Query Match 95.5%; Score 84; DB 14; Length 13;  
Best Local Similarity 92.3%; Pred. No. 0.00017;  
Matches 12; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
DB 1 ECCNPACGRHYSC 13

## RESULT 7

US-10-072-602B-380  
; Sequence 380, Application US/10072602B  
; Publication No. US20030109670A1

; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J, Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Cruz, Lourdes J.  
; APPLICANT: Grilley, Michelle  
; APPLICANT: Schoenfeld, Robert M.  
; APPLICANT: Walker, Craig  
; APPLICANT: Shetty, Reshma  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Cone Snail Peptides  
; FILE REFERENCE: 2314-249  
; CURRENT APPLICATION NUMBER: US/10/072,602B  
; CURRENT FILING DATE: 2002-02-11  
; PRIOR APPLICATION NUMBER: US 60/267,408  
; PRIOR FILING DATE: 2001-02-09  
; NUMBER OF SEQ ID NOS: 638  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 380  
; LENGTH: 59  
; TYPE: PRT  
; ORGANISM: Conus geographus  
US-10-072-602B-380

Query Match 95.5%; Score 84; DB 14; Length 59;  
Best Local Similarity 92.3%; Pred. No. 0.00059;  
Matches 12; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13  
DB 45 ECCNPACGRHYSC 57

## RESULT 8

US-10-833-951-28  
; Sequence 28, Application US/10833951  
; Publication No. US20050053970A1  
; GENERAL INFORMATION:

; APPLICANT: BENSON, JOHN D.  
; APPLICANT: VINCENT, SYLVIE M.  
; APPLICANT: BRASHER, BRADLEY B.  
; APPLICANT: MIAO, ZHENWBI  
; APPLICANT: LAMMIN, DUDLEY  
; TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR IDENTIFYING PEPTIDE APAMERS CAPABLE  
; TITLE OF INVENTION: OF ALTERING A CELL PHENOTYPE  
; FILE REFERENCE: 4014.1037 US2  
; CURRENT APPLICATION NUMBER: US/10/833,951  
; CURRENT FILING DATE: 2004-04-28  
; PRIOR APPLICATION NUMBER: PCT/US02/35584  
; PRIOR FILING DATE: 2002-11-06  
; PRIOR APPLICATION NUMBER: 60/357,278  
; PRIOR FILING DATE: 2002-02-14  
; PRIOR APPLICATION NUMBER: 60/333,262  
; PRIOR FILING DATE: 2001-11-06  
; NUMBER OF SEQ ID NOS: 346  
; SOFTWARE: PatentIn version 3.2  
; SEQ ID NO 28  
; LENGTH: 15  
; TYPE: PRT  
; ORGANISM: Artificial Sequence  
; FEATURE:  
; OTHER INFORMATION: Description of Artificial Sequence: Synthetic construct  
US-10-833-951-28

Query Match 94.3%; Score 83; DB 17; Length 15;  
Best Local Similarity 100.0%; Pred. No. 0.00026;  
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 CCNPACGRHYSC 13  
|||||

Db 1 CCNPACGRHYSC 12

## RESULT 9

US-10-833-951-344  
; Sequence 344, Application US/10833951  
; Publication No. US20050053970A1

## GENERAL INFORMATION:

APPLICANT: BENSON, JOHN D.  
APPLICANT: VINCENT, SYLVIE M.  
APPLICANT: BRASHER, BRADLEY B.  
APPLICANT: MIAO, ZHENWEI  
APPLICANT: LAMIN, DUDLEY

TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR IDENTIFYING PEPTIDE APRTAMERS CAPABLE OF ALTERING A CELL PHENOTYPE

FILE REFERENCE: 4014.1037 US2

CURRENT APPLICATION NUMBER: US/10/833,951

CURRENT FILING DATE: 2004-04-28

PRIOR APPLICATION NUMBER: PCT/US02/35584

PRIOR FILING DATE: 2002-11-06

PRIOR APPLICATION NUMBER: 60/357,278

PRIOR FILING DATE: 2002-02-14

PRIOR APPLICATION NUMBER: 60/333,262

PRIOR FILING DATE: 2001-11-06

NUMBER OF SEQ ID NOS: 346

SOFTWARE: PatentIn version 3.2

SEQ ID NO 344

LENGTH: 15

TYPE: PRT

ORGANISM: Artificial Sequence

FEATURE:

OTHER INFORMATION: Description of Artificial Sequence: Synthetic peptide

US-10-833-951-344

Query Match 94.3%; Score 83; DB 17; Length 15;  
Best Local Similarity 100.0%; Pred. No. 0.00026;  
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 CCNPACGRHYSC 13

Db 1 CCNPACGRHYSC 12

## RESULT 10

US-10-072-602B-593

; Sequence 593, Application US/10072602B

; Publication No. US20030109670A1

## GENERAL INFORMATION:

APPLICANT: University of Utah Research Foundation

APPLICANT: Cognetix, Inc.

APPLICANT: Olivera, Baldomero M.

APPLICANT: McIntosh, J. Michael

APPLICANT: Watkins, Maren

APPLICANT: Garrett, James E.

APPLICANT: Cruz, Lourdes J.

APPLICANT: Grilley, Michelle

APPLICANT: Schoenfeld, Robert M.

APPLICANT: Walker, Craig

APPLICANT: Shetty, Reshma

APPLICANT: Jones, Robert M.

TITLE OF INVENTION: Cone Snail Peptides

FILE REFERENCE: 2314-249

CURRENT APPLICATION NUMBER: US/10/072,602B

CURRENT FILING DATE: 2002-02-11

PRIOR APPLICATION NUMBER: US 60/267,408

PRIOR FILING DATE: 2001-02-09

NUMBER OF SEQ ID NOS: 638

SOFTWARE: PatentIn version 3.0

SEQ ID NO 593

LENGTH: 13

TYPE: PRT

ORGANISM: Conus geographus

US-10-072-602B-593

Query Match 90.9%; Score 80; DB 14; Length 13;  
Best Local Similarity 84.6%; Pred. No. 0.00058;  
Matches 11; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13

Db 1 ECCNPACGRHYSC 13

## RESULT 11

US-10-072-602B-377

; Sequence 377, Application US/10072602B

; Publication No. US20030109670A1

## GENERAL INFORMATION:

APPLICANT: University of Utah Research Foundation

APPLICANT: Cognetix, Inc.

APPLICANT: Olivera, Baldomero M.

APPLICANT: McIntosh, J. Michael

APPLICANT: Watkins, Maren

APPLICANT: Garrett, James E.

APPLICANT: Cruz, Lourdes J.

APPLICANT: Grilley, Michelle

APPLICANT: Schoenfeld, Robert M.

APPLICANT: Walker, Craig

APPLICANT: Shetty, Reshma

APPLICANT: Jones, Robert M.

TITLE OF INVENTION: Cone Snail Peptides

FILE REFERENCE: 2314-249

CURRENT APPLICATION NUMBER: US/10/072,602B

CURRENT FILING DATE: 2002-02-11

PRIOR APPLICATION NUMBER: US 60/267,408

PRIOR FILING DATE: 2001-02-09

NUMBER OF SEQ ID NOS: 638

SOFTWARE: PatentIn version 3.0

SEQ ID NO 377

LENGTH: 37

TYPE: PRT

ORGANISM: Conus geographus

FEATURE:

NAME/KEY: misc feature

LOCATION: (1)..(37)

OTHER INFORMATION: Xaa is unknown

US-10-072-602B-377

Query Match 90.9%; Score 80; DB 14; Length 37;  
Best Local Similarity 84.6%; Pred. No. 0.0013;  
Matches 11; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13

Db 23 ECCNPACGRHYSC 35

## RESULT 12

US-09-908-741-63

; Sequence 63, Application US/09908741

; Publication No. US20030050435A1

## GENERAL INFORMATION:

APPLICANT: Olivera, Baldomero M.

APPLICANT: Layer, Richard T.

APPLICANT: Watkins, Maren

APPLICANT: Hillyard, David R.

APPLICANT: McIntosh, J. Michael

APPLICANT: Schoenfeld, Robert

APPLICANT: Jones, Robert M.

APPLICANT: Nielsen, Jake

APPLICANT: University of Utah Research Foundation

APPLICANT: Cognetix, Inc.

TITLE OF INVENTION: Alpha Conotoxin Peptides

FILE REFERENCE: Alpha CIP

CURRENT APPLICATION NUMBER: US/09/908,741

CURRENT FILING DATE: 2001-07-20



PRIOR APPLICATION NUMBER: US 60/116,881  
PRIOR FILING DATE: 1999-01-22  
PRIOR APPLICATION NUMBER: US 60/116,882  
PRIOR FILING DATE: 1999-01-22  
PRIOR APPLICATION NUMBER: US 09/488,799  
PRIOR FILING DATE: 2000-01-21  
PRIOR APPLICATION NUMBER: US 60/219,407  
PRIOR FILING DATE: 2000-07-20  
PRIOR APPLICATION NUMBER: US 60/221,557  
PRIOR FILING DATE: 2000-07-28  
NUMBER OF SEQ ID NOS: 125  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 63  
LENGTH: 59  
TYPE: PRT  
ORGANISM: *Conus radiatus*  
US-09-908-741-63

Query Match 86.4%; Score 76; DB 10; Length 59;  
Best Local Similarity 76.3%; Pred. No. 0.0065;  
Matches 10; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYS 13  
Db 45 ECCHPACGRHFS 57

RESULT 13  
US-09-908-741-119  
Sequence 119, Application US/09908741  
Publication No. US20030050435A1  
GENERAL INFORMATION:  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: Layer, Richard T.  
APPLICANT: Watkins, Maren  
APPLICANT: Hillyard, David R.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Schoenfeld, Robert  
APPLICANT: Jones, Robert M.  
APPLICANT: Nielsen, Jake  
APPLICANT: University of Utah Research Foundation  
APPLICANT: Cognetix, Inc.  
TITLE OF INVENTION: Alpha Conotoxin Peptides  
FILE REFERENCE: Alpha CIP  
CURRENT APPLICATION NUMBER: US/09/908,741  
CURRENT FILING DATE: 2001-07-20  
PRIOR APPLICATION NUMBER: US 60/116,881  
PRIOR FILING DATE: 1999-01-22  
PRIOR APPLICATION NUMBER: US 60/116,882  
PRIOR FILING DATE: 1999-01-22  
PRIOR APPLICATION NUMBER: US 09/488,799  
PRIOR FILING DATE: 2000-01-21  
PRIOR APPLICATION NUMBER: US 60/219,407  
PRIOR FILING DATE: 2000-07-20  
PRIOR APPLICATION NUMBER: US 60/221,557  
PRIOR FILING DATE: 2000-07-28  
NUMBER OF SEQ ID NOS: 125  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 119  
LENGTH: 13  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: GI Analog

Query Match 85.2%; Score 75; DB 10; Length 13;  
Best Local Similarity 84.6%; Pred. No. 0.0026;  
Matches 11; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYS 13  
Db 1 ECCNPACGRHYS 13

RESULT 14  
US-10-833-951-32  
Sequence 32, Application US/10833951  
Publication No. US20050053970A1  
GENERAL INFORMATION:  
APPLICANT: BENSON, JOHN D.  
APPLICANT: VINCENT, SYLVIE M.  
APPLICANT: BRASHER, BRADLEY B.  
APPLICANT: MIAO, ZHENWEI  
APPLICANT: LAMMIN, DUDLEY  
TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR IDENTIFYING PEPTIDE APTAMERS CAPABLE  
OF ALTERING A CELL PHENOTYPE  
FILE REFERENCE: 4014.1037 US2  
CURRENT APPLICATION NUMBER: US/10/833,951  
CURRENT FILING DATE: 2004-04-28  
PRIOR APPLICATION NUMBER: PCT/US02/35584  
PRIOR FILING DATE: 2002-11-06  
PRIOR APPLICATION NUMBER: 60/357,278  
PRIOR FILING DATE: 2002-02-14  
PRIOR APPLICATION NUMBER: 60/333,262  
PRIOR FILING DATE: 2001-11-06  
NUMBER OF SEQ ID NOS: 346  
SOFTWARE: PatentIn version 3.2  
SEQ ID NO 32  
LENGTH: 15  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: Synthetic construct  
US-10-833-951-32

Query Match 85.2%; Score 75; DB 17; Length 15;  
Best Local Similarity 100.0%; Pred. No. 0.0029;  
Matches 11; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECCNPACGRHY 11  
Db 5 ECCNPACGRHY 15

RESULT 15  
US-10-833-951-343  
Sequence 343, Application US/10833951  
Publication No. US20050053970A1  
GENERAL INFORMATION:  
APPLICANT: BENSON, JOHN D.  
APPLICANT: VINCENT, SYLVIE M.  
APPLICANT: BRASHER, BRADLEY B.  
APPLICANT: MIAO, ZHENWEI  
APPLICANT: LAMMIN, DUDLEY  
TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR IDENTIFYING PEPTIDE APTAMERS CAPABLE  
OF ALTERING A CELL PHENOTYPE  
FILE REFERENCE: 4014.1037 US2  
CURRENT APPLICATION NUMBER: US/10/833,951  
CURRENT FILING DATE: 2004-04-28  
PRIOR APPLICATION NUMBER: PCT/US02/35584  
PRIOR FILING DATE: 2002-11-06  
PRIOR APPLICATION NUMBER: 60/357,278  
PRIOR FILING DATE: 2002-02-14  
PRIOR APPLICATION NUMBER: 60/333,262  
PRIOR FILING DATE: 2001-11-06  
NUMBER OF SEQ ID NOS: 346  
SOFTWARE: PatentIn version 3.2  
SEQ ID NO 343  
LENGTH: 15  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: Synthetic peptide  
US-10-833-951-343

Query Match 85.2%; Score 75; DB 17; Length 15;  
Best Local Similarity 100.0%; Pred. No. 0.0029;  
Matches 11; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 ECCNPACGRHY 11  
Db 5 ECCNPACGRHY 15

Search completed: March 23, 2005, 00:35:04  
Job time : 29.7183 secs

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:16:20 ; Search time 7.29373 Seconds  
(without alignments)  
171.492 Million cell updates/sec

Title: US-09-787-082A-19  
Perfect score: 88  
Sequence: 1 ECCNPACGRHYSC 13

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues

Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : PIR 79:\*  
1: PIR1:\*  
2: PIR2:\*  
3: PIR3:\*  
4: PIR4:\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	88	100.0	15	1 NTKNAG	alpha-conotoxin GI
2	76	86.4	13	1 NTKN2G	alpha-conotoxin GI
3	69	78.4	14	2 A58963	alpha-conotoxin Cn
4	68	77.3	14	1 NTKN1M	alpha-conotoxin MI
5	67	76.1	13	2 A28953	alpha-conotoxin SI
6	65	73.9	19	2 A44379	alpha-conotoxin SI
7	60	68.2	13	1 NTKNAS	alpha-conotoxin SI
8	48.5	55.1	782	2 A61625	tenascin-like prot
9	48	54.5	772	2 S32659	integrin beta 2 ch
10	47	53.4	463	2 T43344	nuclear receptor N
11	46	52.3	18	2 A60103	heat-stable entero
12	46	52.3	29	2 JH0699	omega-conotoxin MV
13	46	52.3	72	1 QHEC1	heat-stable entero
14	46	52.3	342	2 Q84335	cysteine proteins
15	46	52.3	378	2 B59180	Wnt inhibitory fac
16	45	51.1	126	2 C44379	omega-conotoxin SV
17	45	51.1	26	2 I46489	cysteine-rich hair
18	45	51.1	379	2 A59180	Wnt inhibitory fac
19	45	51.1	389	2 A38302	pepsin (EC 3.4.23.
20	44.5	50.6	17	2 A54534	heat-stable entero
21	44.5	50.6	53	2 S68705	heat-stable entero
22	44.5	50.6	78	1 QHVC1	heat-stable entero
23	44	50.0	65	2 S34671	heat-stable entero
24	44	50.0	66	2 S31652	enterotoxin - Yers
25	44	50.0	71	2 S25659	heat-stable entero
26	44	50.0	72	1 QHEC4	heat-stable entero
27	44	50.0	72	1 QHEC1B	heat-stable entero
28	44	50.0	188	2 JG6547	high sulfur protei
29	44	50.0	238	2 JQ2393	V protein - Newcas

30	44	50.0	380	2	T29875	hypothetical prote
31	43	48.9	186	2	A45910	ultra-high-sulfur
32	43	48.9	456	2	S62962	hypothetical prote
33	43	48.9	506	2	A54190	cerebroside-sulfat
34	43	48.9	686	2	S43562	K0855.3 protein -
35	42.5	48.3	169	1	S18945	ultra high-sulfur
36	42.5	48.3	369	2	T24022	hypothetical prote
37	42.5	48.3	406	2	T24021	hypothetical prote
38	42.5	48.3	412	2	T19238	probable retinoid
39	42.5	48.3	415	2	T19234	hypothetical prote
40	42	47.7	175	2	S37649	high-sulfur kerati
41	42	47.7	177	2	S37650	high-sulfur kerati
42	42	47.7	196	2	A81681	BioV family protei
43	42	47.7	864	2	JS0076	regulatory protein
44	41.5	47.2	403	2	T26551	hypothetical prote
45	41	46.6	45	2	S57858	metallothionein 1a

ALIGNMENTS

RESULT 1

NTKNAG  
alpha-conotoxin GIA [validated] - cone shell (Conus geographus)  
N:Alternate names: alpha-CTX-GIA  
N:Contains: alpha-conotoxin GI  
C:Species: Conus geographus (geography cone)  
C:Date: 24-Sep-1981 #sequence\_revision 24-Sep-1981 #text\_change 09-Jul-2004  
C:Accession: A01782  
R:Gray, W.R.; Luque, A.; Olivera, B.M.; Barrett, J.; Cruz, L.J.  
J. Biol. Chem. 256, 4734-4740, 1981  
A:Title: Peptide toxins from Conus geographus venom.  
A:Reference number: A92320; MUID:81191854; PMID:7014556  
A:Accession: A01782  
A:Molecule type: protein  
A:Residues: 1-15 <GRA>  
A:Cross-references: UNIPROT:P01519  
R:Gray, W.R.; Rivier, J.E.; Galyean, R.; Cruz, L.J.; Olivera, B.M.  
J. Biol. Chem. 258, 12247-12251, 1983  
A:Title: Conotoxin MI. Disulfide bonding and conformational states.  
A:Reference number: A92396; MUID:84032400; PMID:6630187  
A:Contents: annotation; disulfide bonds  
R:Guddat, L.W.; Shan, L.; Martin, J.L.; Edmundson, A.B.; Gray, W.R.  
submitted to the Brookhaven Protein Data Bank, May 1996  
A:Reference number: A66253; PDB:1NOT  
A:Contents: annotation; X-ray crystallography, 1.2 angstroms, residues 1-13  
R:Guddat, L.W.; Martin, J.A.; Shan, L.; Edmundson, A.B.; Gray, W.R.  
Biochemistry 35, 11329-11335, 1996  
A:Title: Three-dimensional structure of the alpha-conotoxin GI at 1.2 angstroms resolution  
A:Reference number: A58592; MUID:96378624; PMID:8784187  
A:Contents: annotation; X-ray crystallography, 1.2 angstroms  
R:Pardi, A.; Galdes, A.; Florance, J.; Manicote, D.  
Biochemistry 28, 5494-5501, 1989  
A:Title: Solution structures of alpha-conotoxin GI determined by two-dimensional NMR spectroscopy  
A:Reference number: A30629; MUID:89375269; PMID:2775719  
A:Contents: annotation; conformation by (J)H-NMR  
C:Comment: This alpha-conotoxin, as an acetylcholine receptor inhibitor, is a postsynaptic  
C:Superfamily: alpha-conotoxin  
C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; blocked carboxyl end  
F:1-15/Product: conotoxin GIA #status experimental <GIA>  
F:1-13/Product: conotoxin GI #status experimental <GIC>  
F:2-7,3-13/disulfide bonds: #link GIA #status predicted  
F:2-7,3-13/disulfide bonds: #link GIC #status experimental  
F:13/Modified site: amidated carboxyl end (Cys) (amide in mature form from following glyco  
F:15/Modified site: blocked carboxyl end (Lys) (probably amidated) #status experimental

Query Match 100.0%; Score 88; DB 1; Length 15;  
Best Local Similarity 100.0%; Pred. No. 1.4e-05;  
Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 ECCNPACGRHYSC 13  
DB 1 ECCNPACGRHYSC 13

RESULT 2  
NTKN2G  
alpha-conotoxin GII - cone shell (Conus geographus)  
C:Species: Conus geographus (geography cone)  
C:Date: 24-Sep-1981 #sequence\_revision 24-Sep-1981 #text\_change 09-Jul-2004  
C:Accession: A01783  
R:Gray, W.R.; Luque, A.; Olivera, B.M.; Barrett, J.; Cruz, L.J.  
J. Biol. Chem. 256, 4734-4740, 1981  
A:Title: Peptide toxins from Conus geographus venom.  
A:Reference number: A92320; PMID:81191854; PMID:7014556  
A:Accession: A01783  
A:Molecule type: protein  
A:Residues: 1-13 <GRA>  
A:Cross-references: UNIPROT:P01520  
R:Gray, W.R.; Rivier, J.E.; Galyean, R.; Cruz, L.J.; Olivera, B.M.  
J. Biol. Chem. 258, 12247-12251, 1983  
A:Title: Conotoxin MI. Disulfide bonding and conformational states.  
A:Reference number: A92396; PMID:84032400; PMID:6630187  
A:Contents: annotation; disulfide bonds  
A:Comment: This alpha-conotoxin, as an acetylcholine receptor inhibitor, is a postsynaptic neurotoxin  
C:Superfamily: alpha-conotoxin  
C:Keywords: acetylcholine receptor inhibitor; blocked carboxyl end; postsynaptic neurotoxin  
F:2-7,3-13/disulfide bonds: #status predicted  
F:13/Modified site: blocked carboxyl end (Cys) (probably amidated) #status experimental

Query Match 86.4%; Score 76; DB 1; Length 13;  
Best Local Similarity 76.9%; Pred. No. 0.00048;  
Matches 10; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 1 ECNPACGRHYSC 13  
DB 1 ECCHPACGKHFS 13

RESULT 3  
A58963  
alpha-conotoxin CN1A - cone shell (Conus consors)  
N:Contains: alpha-conotoxin CN1B  
C:Species: Conus consors  
C:Date: 16-Jul-1999 #sequence\_revision 16-Jul-1999 #text\_change 09-Jul-2004  
R:Pavreau, P.; Kriem, L.; Le Gall, F.; Bobenrieth, M.J.; Lamthanh, H.; Bouet, F.; Servet  
Biochemistry 38, 6317-6326, 1999  
A:Title: Biochemical characterization and nuclear magnetic resonance structure of novel  
A:Reference number: A58963; PMID:99255390; PMID:10320362  
A:Accession: A58963  
A:Status: preliminary  
A:Molecule type: protein  
A:Residues: 1-14 <FAV>  
A:Cross-references: UNIPROT:P56973  
C:Superfamily: alpha-conotoxin  
C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neurotoxin  
F:1-14/Product: alpha-conotoxin CN1A #status experimental <DATA>  
F:3-14/Product: alpha-conotoxin CN1B #status experimental <DATA>  
F:3-8,4-14/disulfide bonds: #status experimental  
F:14/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 78.4%; Score 69; DB 2; Length 14;  
Best Local Similarity 75.0%; Pred. No. 0.0042;  
Matches 9; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 2 CCNPACGRHYSC 13  
DB 3 CCHPACGKYSC 14

RESULT 4  
NTKN1M  
alpha-conotoxin MI - cone shell (Conus magus)  
C:Species: Conus magus (magus cone)  
C:Date: 18-Apr-1984 #sequence\_revision 18-Apr-1984 #text\_change 09-Jul-2004

C:Accession: A01784  
R:McIntosh, M.; Cruz, L.J.; Hunkapiller, M.W.; Gray, W.R.; Olivera, B.M.  
Arch. Biochem. Biophys. 218, 329-334, 1982  
A:Title: Isolation and structure of a peptide toxin from the marine snail Conus magus.  
A:Reference number: A90071; PMID:83073458; PMID:7149738  
A:Accession: A01784  
A:Molecule type: protein  
A:Residues: 1-14 <MCI>  
A:Cross-references: UNIPROT:P01521  
R:Gray, W.R.; Rivier, J.E.; Galyean, R.; Cruz, L.J.; Olivera, B.M.  
J. Biol. Chem. 258, 12247-12251, 1983  
A:Title: Conotoxin MI. Disulfide bonding and conformational states.  
A:Reference number: A92396; PMID:84032400; PMID:6630187  
A:Contents: annotation; disulfide bonds  
A:Comment: This alpha-conotoxin, as an acetylcholine receptor inhibitor, is a postsynaptic neurotoxin  
C:Superfamily: alpha-conotoxin  
C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neurotoxin  
F:3-8,4-14/disulfide bonds: #status experimental  
F:14/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 77.3%; Score 68; DB 1; Length 14;  
Best Local Similarity 75.0%; Pred. No. 0.0056;  
Matches 9; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 2 CCNPACGRHYSC 13  
DB 3 CCHPACGKYSC 14

RESULT 5  
A28953  
alpha-conotoxin SI - cone shell (Conus striatus)  
C:Species: Conus striatus (striated cone)  
C:Date: 30-Jun-1989 #sequence\_revision 25-Apr-1997 #text\_change 09-Jul-2004  
C:Accession: A28953  
R:Zafaralla, G.C.; Ramilo, C.; Gray, W.R.; Karlstrom, R.; Olivera, B.M.; Cruz, L.J.  
Biochemistry 27, 7102-7105, 1988  
A:Title: Phylogenetic specificity of cholinergic ligands: alpha-conotoxin SI.  
A:Reference number: A28953; PMID:89062448; PMID:3196703  
A:Accession: A28953  
A:Molecule type: protein  
A:Residues: 1-13 <ZAF>  
A:Cross-references: UNIPROT:P15471  
A:Note: This sequence was confirmed by chemical synthesis  
C:Comment: This paralytic toxin from a fish-hunting cone snail inhibits the acetylcholine  
C:Superfamily: alpha-conotoxin  
C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neurotoxin  
F:2-7,3-13/disulfide bonds: #status experimental  
F:13/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 76.1%; Score 67; DB 2; Length 13;  
Best Local Similarity 83.3%; Pred. No. 0.0073;  
Matches 10; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 2 CCNPACGRHYSC 13  
DB 2 CCNPACGPKYSC 13

RESULT 6  
A44379  
alpha-conotoxin SII - cone shell (Conus striatus)  
C:Species: Conus striatus (striated cone)  
C:Date: 31-Dec-1993 #sequence\_revision 31-Dec-1993 #text\_change 16-Jul-1999  
C:Accession: A44379  
R:Ramilo, C.A.; Zafaralla, G.C.; Nadasdi, L.; Hammerland, L.G.; Yoshikami, D.; Gray, W.R.  
Biochemistry 31, 9919-9926, 1992  
A:Title: Novel alpha- and omega-conotoxins from Conus striatus venom.  
A:Reference number: A44379; PMID:93003172; PMID:1390774  
A:Accession: A44379  
A:Molecule type: protein  
A:Residues: 1-19 <RAM>  
A:Cross-references: CAS:143294-31-9; PIDN:AAB23762.1; PID:g257934

A:Experimental source: venom  
A>Note: sequence extracted from NCBI backbone (NCBIP:116000); structure confirmed by che  
C:Comment: This peptide is an acetylcholine receptor blocker.  
C:Superfamily: alpha-conotoxin  
C:Keywords: acetylcholine receptor inhibitor; postsynaptic neurotoxin; venom  
F:2-18,3-8,4-14/Disulfide bonds: #status predicted  
F:19/Modified site: amidated carboxyl end (Ser) #status absent

Query Match 73.9%; Score 65; DB 2; Length 19;  
Best Local Similarity 75.0%; Pred. No. 0.017;  
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 2 CCNPACGRHYSC 13  
DB 3 CCNPACGPNYGC 14  
|||||:|

RESULT 7  
NTKNS  
alpha-conotoxin SIA - cone shell (Conus striatus)  
C:Species: Conus striatus (striated cone)  
C>Date: 30-Sep-1992 #sequence\_revision 30-Sep-1992 #text\_change 09-Jul-2004  
C:Accession: A40312  
R:Myers, R.A.; Zafaralla, G.C.; Gray, W.R.; Abbott, J.; Cruz, L.J.; Olivera, B.M.  
Biochemistry 30, 9370-9377, 1991  
A:Title: alpha-Conotoxins, small peptide probes of nicotinic acetylcholine receptors.  
A:Reference number: A40312; MUID:91369955; PMID:1892838  
A:Accession: A40312  
A:Molecule type: protein  
A:Residues: 1-13 <MYE>  
A:Cross-references: UNIPROT:P28878  
C:Comment: This paralytic toxin from a fish-hunting cone snail inhibits the acetylcholin  
C:Superfamily: alpha-conotoxin  
C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neuro  
F:2-7,3-13/Disulfide bonds: #status experimental  
F:13/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 68.2%; Score 60; DB 1; Length 13;  
Best Local Similarity 58.3%; Pred. No. 0.061;  
Matches 7; Conservative 4; Mismatches 1; Indels 0; Gaps 0;

QY 2 CCNPACGRHYSC 13  
DB 2 CCHPACGKNFDC 13  
|||||:|

RESULT 8  
A61625  
tenascin-like protein precursor - fruit fly (Drosophila melanogaster)  
C:Species: Drosophila melanogaster  
C>Date: 21-Jul-1995 #sequence\_revision 28-Jul-1995 #text\_change 09-Jul-2004  
C:Accession: A61625; S28463  
R:Baumgartner, S.; Chiquet-Ehrismann, R.  
Mech. Dev. 40, 165-176, 1993  
A:Title: Ten(a), a Drosophila gene related to tenascin, shows selective transcript local  
A:Reference number: A61625; MUID:93364270; PMID:7684246  
A:Accession: A61625  
A:Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-782 <BAU>  
A:Cross-references: UNIPROT:Q24550; EMBL:X68794  
C:Genetics:  
A:Gene: ten-a  
A:Cross-references: FlyBase:FBgn0004446  
C:Keywords: tandem repeat  
F:1-62/Domain: signal sequence #status predicted <SIG>  
F:63-782/Product: tenascin-like protein #status predicted <MAT>  
F:497-524/Domain: EGF homology <EGF>

Query Match 55.1%; Score 48.5; DB 2; Length 782;  
Best Local Similarity 57.1%; Pred. No. 33;  
Matches 8; Conservative 1; Mismatches 4; Indels 1; Gaps 1;

QY 1 ECC-NPACGRHYSC 13  
DB 717 ECCSHPACSEHMC 730  
|||||:|

RESULT 9  
integrin beta 2 chain (CD18) - chicken  
N:Alternate names: CD18 protein  
C:Species: Gallus gallus (chicken)  
C>Date: 06-Jan-1995 #sequence\_revision 06-Jan-1995 #text\_change 09-Jul-2004  
C:Accession: I50660; S32659  
R:Bjlsland, C.A.; Springer, T.A.  
J. Leukoc. Biol. 55, 501-506, 1994  
A:Title: Cloning and expression of the chicken CD18 cDNA.  
A:Reference number: I50660; MUID:94194252; PMID:7908319  
A:Accession: I50660  
A:Status: preliminary; translated from GB/EMBL/DBDJ  
A:Molecule type: mRNA  
A:Residues: 1-772 <BI2>  
A:Cross-references: UNIPROT:Q92070; EMBL:X71786; NID:g297566; PIDN:CAA50671.1; PID:g29756  
C:Superfamily: integrin beta chain; laminin-type EGF-like homology

Query Match 54.5%; Score 48; DB 2; Length 772;  
Best Local Similarity 60.0%; Pred. No. 38;  
Matches 9; Conservative 0; Mismatches 4; Indels 2; Gaps 1;

QY 1 EC--CNPACGRHYSC 13  
DB 615 ECPGCPSPGHRHSC 629  
|||||:|

RESULT 10  
T43344  
nuclear receptor NHR-3 - Caenorhabditis elegans  
C:Species: Caenorhabditis elegans  
C>Date: 11-Jan-2000 #sequence\_revision 11-Jan-2000 #text\_change 16-Aug-2004  
C:Accession: T43344; T23020  
R:Sludner, A.E.; Mathews, S.W.; Hough, D.; Yin, V.P.; Maina, C.V.  
Genome Res. 9, 103-120, 1999  
A:Title: The nuclear receptor superfamily has undergone extensive proliferation and diver  
A:Reference number: Z22443; MUID:99148134; PMID:10022975  
A:Accession: T43344  
A:Status: preliminary; translated from GB/EMBL/DBDJ  
A:Molecule type: mRNA  
A:Residues: 1-463 <SLU>  
A:Cross-references: UNIPROT:Q9XTJ4; EMBL:AF083222; NID:g4139069; PIDN:AAD03680.1; PID:g41  
R:Lloyd, C.  
submitted to the EMBL Data Library, January 1998  
A:Reference number: Z19654  
A:Accession: T23020  
A:Status: preliminary; translated from GB/EMBL/DBDJ  
A:Molecule type: DNA  
A:Residues: 1-463 <WII>  
A:Cross-references: EMBL:AL021387; PIDN:CAA16168.1; GSPDB:GN00028; CESP:H01A20.1  
A:Experimental source: clone H01A20  
C:Genetics:  
A:Gene: nhr-3; H01A20.1  
A:Map position: X  
A:Introns: 53/2; 100/1; 236/3; 280/3; 343/2; 430/3  
C:Superfamily: erba transforming protein homology

Query Match 53.4%; Score 47; DB 2; Length 463;  
Best Local Similarity 70.0%; Pred. No. 36;  
Matches 7; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 2 CCNPACGRHY 11  
DB 56 CCDEASGRHY 65  
|||||:|

RESULT 11  
A60103

heat-stable enterotoxin ST-Ia - Citrobacter freundii  
 C:Species: Citrobacter freundii  
 C:Date: 10-Nov-1992 #sequence\_revision 10-Nov-1992 #text\_change 09-Jul-2004  
 C:Accession: A60103  
 R:Guarino, A.; Giannella, R.; Thompson, M.R.  
 Proc. Natl. Acad. Sci. U.S.A. 77, 649-652, 1980  
 A:Title: Citrobacter freundii produces an 18-amino-acid heat-stable enterotoxin identical to enterotoxin ST-Ia  
 A:Reference number: A60103; MUID:89108617; PMID:2912902  
 A:Accession: A60103  
 A:Molecule type: protein  
 A:Residues: 1-18 <GUA>  
 A:Cross-references: UNIPROT:Q7M0U3  
 C:Superfamily: heat-stable enterotoxin ST

Query Match 52.3%; Score 46; DB 2; Length 18;  
 Best Local Similarity 70.0%; Pred. No. 5.3;  
 Matches 7; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 2 CCNPACGRHY 11  
 DB 9 CCNPACAGCY 18

RESULT 12  
 JH0699  
 omega-conotoxin MVIIC precursor [validated] - cone shell (Conus magus) (fragment)  
 C:Species: Conus magus (magus cone)  
 C:Date: 17-Apr-1993 #sequence\_revision 11-Apr-1997 #text\_change 09-Jul-2004  
 C:Accession: JH0699; PC2380  
 R:Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadaesdi, L.; Ramachandran, J.; M  
 Neuron 9, 69-77, 1992  
 A:Title: A new conus peptide ligand for mammalian presynaptic Ca2+ channels.  
 A:Reference number: JH0699; MUID:92337922; PMID:1352986  
 A:Accession: JH0699  
 A:Molecule type: mRNA  
 A:Residues: 1-29 <HIL>  
 A:Cross-references: UNIPROT:P37300; GB:S40826; NID:G252126; PIDN:AA822674.1; PID:G252127  
 R:Nemoto, N.; Kubo, S.; Yoshida, T.; Chino, N.; Kimura, T.; Sakakibara, S.; Kyogoku, Y.;  
 Biochem. Biophys. Res. Commun. 207, 695-700, 1995  
 A:Title: Solution structure of omega-conotoxin MVIIC determined by NMR.  
 A:Reference number: PC2380; MUID:95169113; PMID:7864862  
 A:Accession: PC2380  
 A:Molecule type: protein  
 A:Residues: 3-28 <NEM>  
 R:Farr-Jones, S.; Basus, V.J.  
 Submitted to the Brookhaven Protein Data Bank, December 1994  
 A:Reference number: A66297; PDB:1OMN  
 A:Contents: annotation; conformation by (1)H-NMR, residues 3-28  
 R:Farr-Jones, S.; Miljanich, G.P.; Nadaesdi, L.; Ramachandran, J.; Basus, V.J.  
 J. Mol. Biol. 248, 106-124, 1995  
 A:Title: Solution structure of omega-conotoxin MVIIC, a high affinity of P-type calcium  
 A:Reference number: A58582; MUID:95248539; PMID:7731037  
 A:Contents: annotation; conformation by (1)H-NMR  
 C:Superfamily: omega-conotoxin  
 C:Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh  
 F:3-28/Product: omega-conotoxin MVIIC #status experimental <MAT>  
 F:3-18,10-22,17-28/Disulfide bonds: #status experimental  
 F:28/Modified site: amidated carboxyl end (Cys) (amide in mature form from following gly

Query Match 52.3%; Score 46; DB 2; Length 29;  
 Best Local Similarity 46.2%; Pred. No. 7.3;  
 Matches 6; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

QY 1 EECNPACGRHYSC 13  
 DB 16 DCCSGSGRRGKC 28

RESULT 13  
 QHEC1  
 heat-stable enterotoxin ST-I precursor - Escherichia coli  
 N:Alternate names: heat-stable enterotoxin estA1  
 C:Species: Escherichia coli

C:Date: 31-Aug-1980 #sequence\_revision 31-Aug-1980 #text\_change 09-Jul-2004  
 C:Accession: A01822; A30985; A36732; JH0374; I51932  
 R:So, M.; McCarthy, B.J.  
 Proc. Natl. Acad. Sci. U.S.A. 77, 4011-4015, 1980  
 A:Title: Nucleotide sequence of the bacterial transposon Tn1681 encoding a heat-stable (ST)  
 A:Reference number: A01822; MUID:81054703; PMID:6254008  
 A:Accession: A01822  
 A:Molecule type: DNA  
 A:Residues: 1-72 <LAZ>  
 A:Cross-references: UNIPROT:P01559; GB:V00612; GB:J01831; NID:G43704; PIDN:CAA23883.1; P;  
 R:Lazure, C.; Seidah, N.G.; Chretien, M.; Lallier, R.; St-Pierre, S.  
 Can. J. Biochem. Cell Biol. 61, 287-292, 1983  
 A:Title: Primary structure determination of Escherichia coli heat-stable enterotoxin of I  
 A:Reference number: A30985; MUID:83284515; PMID:6349752  
 A:Accession: A30985  
 A:Molecule type: protein  
 A:Residues: 55-72 <LAZ2>  
 A:Experimental source: strain F11  
 R:Dallas, W.S.  
 J. Bacteriol. 172, 5490-5493, 1990  
 A:Title: The heat-stable toxin I gene from Escherichia coli 18D.  
 A:Reference number: A36732; MUID:90368614; PMID:2203756  
 A:Accession: A36732  
 A:Molecule type: DNA  
 A:Residues: 1-72 <DAL>  
 A:Cross-references: GB:M58746; NID:G145860; PIDN:AAA62776.1; PID:G145861  
 A:Experimental source: strain 18D  
 R:Stegeltz, H.; Cervantes, L.; Robledo, R.; Fonseca, R.; Covarrubias, L.; Bolivar, F.;  
 Plasmid 20, 42-53, 1988  
 A:Title: Cloning, sequencing, and expression in ficoll-generated minicells of an Escheric  
 A:Reference number: JH0373; MUID:89202548; PMID:3071819  
 A:Accession: JH0374  
 A:Molecule type: DNA  
 A:Residues: 1-72 <STI>  
 R:Seikizaki, T.; Akashi, H.; Terakado, N.  
 Am. J. Vet. Res. 46, 909-912, 1985  
 A:Title: Nucleotide sequences of the genes for Escherichia coli heat-stable enterotoxin I  
 A:Reference number: I51932; MUID:85249571; PMID:2990268  
 A:Accession: I51932  
 A:Status: translated from GB/EMBL/DBJ  
 A:Molecule type: DNA  
 A:Residues: 1-69,'P',71-72 <RES>  
 A:Cross-references: GB:M25607; NID:G147877; PIDN:AAA24653.1; PID:G147878  
 C:Comment: Both heat-stable and heat-labile enterotoxins are produced by pathogenic strai  
 ular sizes  
 C:Superfamily: heat-stable enterotoxin ST  
 C:Keywords: enterotoxin; heat-stable protein  
 F:1-19/Domain: signal sequence #status predicted <SIG>  
 F:20-54/Domain: propeptide #status predicted <PRO>  
 F:55-72/Product: heat-stable enterotoxin ST-I #status experimental <MAT>  
 F:59-64,60-68,63-71/Disulfide bonds: #status predicted

Query Match 52.3%; Score 46; DB 1; Length 72;  
 Best Local Similarity 70.0%; Pred. No. 14;  
 Matches 7; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 2 CCNPACGRHY 11  
 DB 63 CCNPACAGCY 72

RESULT 14  
 C48435  
 cysteine proteinase AC-4 - nematode (Haemonchus contortus)  
 C:Species: Haemonchus contortus  
 C:Date: 01-Dec-1993 #sequence\_revision 18-Nov-1994 #text\_change 09-Jul-2004  
 C:Accession: C48435  
 R:Pratt, D.; Ames, L.G.; Hageman, R.; Reynolds, V.; Boisvenue, R.J.; Cox, G.N.  
 Mol. Biochem. Parasitol. 51, 209-218, 1992  
 A:Title: Cloning and sequence comparisons of four distinct cysteine proteases expressed  
 A:Reference number: A48435; MUID:92244291; PMID:1574079  
 A:Accession: C48435  
 A:Status: preliminary

A:Molecule type: mRNA  
 A:Residues: 1-342 <PRA>  
 A:Cross-references: UNIPROT:Q25031; GB:M80386; NID:g159176; PIDN:AAA29177.1; PID:g159177  
 A:Note: sequence extracted from NCBI backbone (NCBIN:98516, NCBIP:98521)  
 C:Superfamily: papain

Query Match 52.3%; Score 46; DB 2; Length 342;  
 Best Local Similarity 58.3%; Pred. No. 40;  
 Matches 7; Conservative 1; Mismatches 2; Indels 2; Gaps 1;

QY 2 CCNPACGRHYSC 13  
 ||||| :  
 Db 145 CCNPQCG--FGC 154

## RESULT 15

B59180  
 Wnt inhibitory factor-1 - zebra fish  
 C:Species: Brachydanio rerio (zebra fish)  
 C:Date: 18-Feb-2000 #sequence\_revision 18-Feb-2000 #text\_change 09-Jul-2004  
 C:Accession: B59180  
 R:Rsieh, J.C.; Kodjabachian, L.; Rebert, M.L.; Rattner, A.; Smallwood, P.M.; Samos, C.H.  
 Nature 398, 431-436, 1999  
 A:Title: A new secreted protein that binds to Wnt proteins and inhibits their activities  
 A:Reference number: A59180; MUID:99215557; PMID:10201374  
 A:Accession: B59180  
 A:Status: preliminary; not compared with conceptual translation  
 A:Molecule type: mRNA  
 A:Residues: 1-378 <HSI>  
 A:Cross-references: UNIPROT:Q9W6F9; GB:AF122925; NID:g4585375; PIDN:AAD25405.1; PID:g458  
 C:Genetics:  
 A:Gene: WIF-1

Query Match 52.3%; Score 46; DB 2; Length 378;  
 Best Local Similarity 54.5%; Pred. No. 42;  
 Matches 6; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 3 CCNPACGRHYSC 13  
 ||||| :  
 Db 308 CCFSCGAGTC 318

Search completed: March 22, 2005, 22:54:21  
 Job time : 8.29373 secs

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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:45:36 ; Search time 34.7096 Seconds  
(without alignments)  
191.792 Million cell updates/sec

Title: US-09-787-082A-19  
Perfect score: 88  
Sequence: 1 EECNACGRHYSC 13

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : UniProt 03.\*

1: uniprot\_prot.\*

2: uniprot\_trembl.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	88	100.0	15	1	CXAA_CONGE
2	76	86.4	13	1	CXAA_CONGE
3	69	78.4	14	1	CXA1_CONCN
4	68	77.3	14	1	CXA1_CONMA
5	67	76.1	64	1	CXA1_CONST
6	65	73.9	72	1	CXA1_CONST
7	60	68.2	13	1	CXAA_CONST
8	52	59.1	645	2	Q62985
9	50	56.8	229	2	Q9QY21
10	50	56.8	266	2	Q9RIK1
11	50	56.8	337	2	Q9RIK0
12	50	56.8	831	2	Q9PU49
13	50	56.8	874	2	Q9RI63
14	50	56.8	2144	2	Q9ULU2
15	50	56.8	2764	2	Q9WTS5
16	50	56.8	2765	2	Q9RIK2
17	50	56.8	2802	2	Q9PERS
18	49	55.7	53	2	Q8G0M8
19	49	55.7	116	2	Q8GSD5
20	49	55.7	2284	2	Q9VPG1
21	48.5	55.1	49	2	Q23947
22	48.5	55.1	3004	2	Q24550
23	48.5	55.1	3004	2	Q9VYN8
24	48	54.5	249	2	Q9I7N9
25	48	54.5	488	2	Q7SAX9
26	48	54.5	772	2	Q92070
27	47	53.4	111	2	Q6A166
28	47	53.4	463	1	NHR3 CAEEL
29	46	52.3	18	2	Q7M0U3
30	46	52.3	29	1	CXOC CONMA
31	46	52.3	38	2	Q701N5

32 46 52.3 61 2 Q6VEG9 Q6veg9 escherichia  
33 46 52.3 72 1 HST1\_ECOLI P01559 escherichia  
34 46 52.3 114 2 Q6NLH0 P01559 arabidopsis  
35 46 52.3 136 1 KR42\_HUMAN Q9BYR5 homo sapien  
36 46 52.3 165 2 Q6L8G8 Q6l8g8 homo sapien  
37 46 52.3 178 2 Q848J9 Q848j9 uncultured  
38 46 52.3 288 2 Q6L8H1 Q6l8h1 homo sapien  
39 46 52.3 342 2 Q25031 Q25031 haemochus  
40 46 52.3 372 2 Q9V9V8 Q9v9v8 drosophila  
41 46 52.3 374 1 WIF1\_XENLA Q9W6F8 xenopus lae  
42 46 52.3 378 1 WIF1\_BRARE Q9W6F9 brachydanio  
43 45.5 51.7 51 2 Q8MLN5 Q8mln5 drosophila  
44 45.5 51.7 235 2 Q8JOK8 Q8jok8 melanocarpu  
45 45 51.1 72 1 CXOB\_CONST P28881 conus stria

#### ALIGNMENTS

RESULT 1  
ID CXAA\_CONGE STANDARD; PRT; 15 AA.  
AC P01519;  
DT 21-JUL-1986 (Rel. 01, Created)  
DT 21-JUL-1986 (Rel. 01, Last sequence update)  
DT 25-OCT-2004 (Rel. 45, Last annotation update)  
DE Alpha-conotoxin GIA [Contains: Alpha-conotoxin GI (GI)].  
OS Conus Geographus (Geography cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Neogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=6491;  
RN [1]  
RP SEQUENCE.  
RX MEDLINE=81191854; PubMed=7014556;  
RA Gray W.R., Lucue F.A., Olivera B.M., Barrett J., Cruz L.J.;  
RT "Peptide toxins from Conus geographus venom.";  
RL J. Biol. Chem. 256:4734-4740(1981).  
RN [2]  
RP DISULFIDE BONDS OF GI, AND SYNTHESIS OF GI.  
RX MEDLINE=83105694; PubMed=7152021; DOI=10.1016/0014-5793(82)80820-X;  
RA Nishinuchi Y., Sakakibara S.;  
RT "Primary and secondary structure of conotoxin GI, a neurotoxic  
tridecapeptide from a marine snail.";  
RL FEBS Lett. 148:260-262(1982).  
RN [3]  
RP DISULFIDE BONDS OF GI, AND SYNTHESIS OF GI.  
RX MEDLINE=84280842; PubMed=6466616;  
RA Stone B.L., Lucue F.A., Galyean R., Atherton E., Sheppard R.C.,  
Rivier J.;  
RT "Conotoxin GI: disulfide bridges, synthesis, and preparation of  
iodinated derivatives.";  
RL Biochemistry 23:2796-2802(1984).  
RN [4]  
RP COMPARISON WITH ALPHA-CONOTOXIN SI AND ALPHA-CONOTOXIN MI.  
RX MEDLINE=95034849; PubMed=7947815;  
RA Hann R.M., Pagan O.R., Eterovic V.A.;  
RT "The alpha-conotoxins GI and MI distinguish between the nicotinic  
acetylcholine receptor agonist sites while SI does not.";  
RL Biochemistry 33:14058-14063(1994).  
RN [5]  
RP PHARMACOLOGICAL CHARACTERIZATION ON MOUSE MUSCLE-DERIVED BC3H-1 CELLS  
AND TORPEDO ELECTRIC ORGAN.  
RX MEDLINE=95349531; PubMed=7623764;  
RA Groebe D.R., Dumm J.M., Levitan E.S., Abramson S.N.;  
RT "alpha-Conotoxins selectively inhibit one of the two acetylcholine  
binding sites of nicotinic receptors.";  
RL Mol. Pharmacol. 48:105-111(1995).  
RN [6]  
RP MUTAGENESIS OF ARG-9  
RX MEDLINE=97317090; PubMed=9174364; DOI=10.1021/bi970195w;  
RA Groebe D.R., Gray W.R., Abramson S.N.;



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RESULT 3
CXAL_CONCN
ID CXAL_CONCN STANDARD; PRT; 14 AA.
AC P56973;
DT 16-OCT-2001 (Rel. 40, Created)
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 25-OCT-2004 (Rel. 45, Last annotation update)
DE Alpha-conotoxin CnIB (Contains: Alpha-conotoxin CnIB).
OS Conus consors (Singed cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=101297;
RN [1]
RP SEQUENCE, SYNTHESIS, CHARACTERIZATION, AND STRUCTURE BY NMR.
RX TISSUE=Venom;
RC MEDLINE=99255390; PubMed=10320362; DOI=10.1021/bi982817z;
RA Favreau P., Krimm I., le Gall F., Bobenrieth M.J., Lamthanh H.,
RA Bouet F., Servent D., Molgo J., Menez A., Letourneux Y.,
RA Lancelin J.-M.;
RT "Biochemical characterization and nuclear magnetic resonance structure
of novel alpha-conotoxins isolated from the venom of Conus consors.";
RL Biochemistry 38:6317-6326(1999).
CC -!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they
bind to the nicotinic acetylcholine receptors (nAChR) and thus
inhibit them. This peptide seems to be a potent and selective
blocker of muscular subtype of nAChR.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type
family.
DR PIR; A58963; A58963.
DR PDB; 1B45; NMR; @=1-14.
KW 3D-structure; Acetylcholine receptor inhibitor; Amidation;
Direct protein sequencing; Neurotoxin; Postsynaptic neurotoxin; Toxin.
FT PEPTIDE 1 14 Alpha-conotoxin CnIB.
FT PEPTIDE 3 14
FT DISULFID 3 8
FT DISULFID 4 14
FT MOD_RES 14 14 Cysteine amide.
FT HELIX 6 8
FT TURN 9 10
SQ SEQUENCE 14 AA; 1548 MW; DEEE91969BF5E5BD CRC64;

Query Match 78.4%; Score 69; DB 1; Length 14;
Best Local Similarity 75.0%; Pred. No. 0.0056; 0; Indels 0; Gaps 0;
Matches 9; Conservative 3; Mismatches 0;

QY 2 CCNPACGRHYSC 13
||:||||:|
Db 3 CCHPACGKYSC 14

RESULT 4
CXAL_CONNA
ID CXAL_CONNA STANDARD; PRT; 14 AA.
AC P01521;
DT 21-JUL-1986 (Rel. 01, Created)
DT 21-JUL-1986 (Rel. 01, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Alpha-conotoxin MI (M1).
OS Conus magus (Magus cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6492;
RN [1]
RP SEQUENCE.
RX MEDLINE=83073458; PubMed=7149738;
RA McIntosh J.M., Cruz L.J., Hunkapiller M.W., Gray W.R., Olivera B.M.;
RT "Isolation and structure of a peptide toxin from the marine snail

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RT Conus magus.";
RL Arch. Biochem. Biophys. 218:329-334(1982).
RN [2]
RP DISULFIDE BONDS.
RX MEDLINE=84032400; PubMed=6630187;
RA Gray W.R., Rivier J.E., Galyean R., Cruz L.J., Olivera B.M.;
RT "Conotoxin MI. Disulfide bonding and conformational states.";
RL J. Biol. Chem. 258:12247-12251(1983).
CC -!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they
bind to the nicotinic acetylcholine receptors (nAChR) and thus
inhibit them.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type
family.
DR PIR; A01784; NTKNIM.
DR HSP; P56973; 1B45.
KW Acetylcholine receptor inhibitor; Amidation;
Direct protein sequencing; Neurotoxin; Postsynaptic neurotoxin; Toxin.
FT DISULFID 3 8
FT DISULFID 4 14 Cysteine amide.
FT MOD_RES 14 14
SQ SEQUENCE 14 AA; 1499 MW; DEEE91898BF5E5BD CRC64;

Query Match 77.3%; Score 68; DB 1; Length 14;
Best Local Similarity 75.0%; Pred. No. 0.0077; 0; Indels 0; Gaps 0;
Matches 9; Conservative 3; Mismatches 0;

QY 2 CCNPACGRHYSC 13
||:||||:|
Db 3 CCHPACGKYSC 14

RESULT 5
CXAL_CONST
ID CXAL_CONST STANDARD; PRT; 64 AA.
AC P15471;
DT 01-APR-1990 (Rel. 14, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Alpha-conotoxin SI precursor (S1).
OS Conus striatus (Striated cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6493;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Venom duct;
RX MEDLINE=20037955; PubMed=10573284; DOI=10.1016/S0196-9781(99)00116-3;
RA Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-F.;
RT "Conopeptides from Conus striatus and Conus textile by cDNA cloning.";
RL Peptides 20:1139-1144(1999).
RN [2]
RP SEQUENCE.
RX MEDLINE=89062448; PubMed=3196703;
RA Zafaralla G.C., Ramilo C., Gray W.R., Karlstrom R., Olivera B.M.,
RA Cruz L.J.;
RT "Phylogenetic specificity of cholinergic ligands: alpha-conotoxin
SI.";
RL Biochemistry 27:7102-7105(1988).
CC -!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they
bind to the nicotinic acetylcholine receptors (nAChR) and thus
inhibit them.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type
family.
DR PIR; A28953; A28953.
DR InterPro; IPR009958; Toxin_8.
DR Pfam; PF07365; Toxin_8; 1.
KW Acetylcholine receptor inhibitor; Amidation;
Direct protein sequencing; Neurotoxin; Postsynaptic neurotoxin;

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KW Signal; Toxin. 1 21 Potential.
FT SIGNAL 22 49 Alpha-conotoxin SI.
FT PEPTIDE 50 62
FT DISULFID 51 56
FT DISULFID 52 62
FT MOD_RES 62 62
SQ SEQUENCE 64 AA; 7164 MW; B104B80CCD7C3B41 CRC64;

Query Match 76.1%; Score 67; DB 1; Length 64;
Best Local Similarity 83.3%; Pred. No. 0.037;
Matches 10; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 2 CCNPACGRHYSC 13
||| ||| ||| |||
DB 51 CCNPACGPKYSC 62

RESULT 6
CXAA2 CONST STANDARD; PRT; 72 AA.
AC P28879; Q816R6;
DT 01-DEC-1992 (Rel. 24, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 25-OCT-2004 (Rel. 45, Last annotation update)
DE Alpha-conotoxin SII precursor (S2).
OS Conus striatus (Striated cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6493;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Venom;
RX PubMed=14602116; DOI=10.1016/j.toxicon.2003.08.005;
RA Wang C.-Z., Jiang H., Ou Z.-L., Chen J.-S., Chi C.-W.;
RT "cDNA cloning of two A-superfamily conotoxins from Conus striatus.";
RL Toxicon 42:613-619(2003).
RN [3]
RP SEQUENCE OF 51-69, AND SYNTHESIS.
RC TISSUE=Venom;
RX MEDLINE=93003172; PubMed=1390774;
RA Ramilo C., Zafarella G.C., Nadasdi L., Hammerland L.G., Yoshikami D.,
RA Gray W.R., Kristipati R., Ramchandran J., Miljanich G., Olivera B.M.,
RA Cruz L.J.;
RT "Novel alpha- and omega-conotoxins from Conus striatus venom.";
RL Biochemistry 31:9919-9926(1992).
CC -!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they
CC bind to the nicotinic acetylcholine receptors (nAChR) and thus
CC inhibit them.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type
CC family.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
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DR EMBL; AY157497; AAN77902.1;
DR PIR; A44379; A44379.
DR InterPro; IPR009958; Toxin_8.

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DR Pfam; PF07365; Toxin_8; 1.
KW Acetylcholine receptor inhibitor; Direct protein sequencing;
KW Neurotoxin; Postsynaptic neurotoxin; Signal; Toxin.
FT SIGNAL 1 21 Potential.
FT PROPEP 22 50 Alpha-conotoxin SII.
FT PEPTIDE 51 69
FT PROPEP 70 72 Potential.
FT DISULFID 52 68 By similarity.
FT DISULFID 53 58 By similarity.
FT DISULFID 54 64 By similarity.
FT CONFLICT 23 23 T -> P (in Ref. 2).
FT CONFLICT 72 72 L -> I (in Ref. 2).
SQ SEQUENCE 72 AA; 7834 MW; 52168A192B8A94CF CRC64;

Query Match 73.9%; Score 65; DB 1; Length 72;
Best Local Similarity 75.0%; Pred. No. 0.078;
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 2 CCNPACGRHYSC 13
||| ||| ||| |||
DB 53 CCNPACGPNYGC 64

RESULT 7
CXAA CONST STANDARD; PRT; 13 AA.
AC P28878;
DT 01-DEC-1992 (Rel. 24, Created)
DT 01-DEC-1992 (Rel. 24, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Alpha-conotoxin SIA (SIA).
OS Conus striatus (Striated cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6493;
RN [1]
RP SEQUENCE.
RC TISSUE=Venom;
RX MEDLINE=91369955; PubMed=1892838;
RA Myers R.A., Zafarella G.C., Gray W.R., Abbot J., Cruz L.J.,
RA Olivera B.M.;
RT "Alpha-conotoxins, small peptide probes of nicotinic acetylcholine
RT receptors.";
RL Biochemistry 30:9370-9377(1991).
CC -!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they
CC bind to the nicotinic acetylcholine receptors (nAChR) and thus
CC inhibit them.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type
CC family.
CC PIR; A40312; NTKNAS.
DR Acetylcholine receptor inhibitor; Amidation;
KW Direct protein sequencing; Neurotoxin; Postsynaptic neurotoxin; Toxin.
FT DISULFID 2 7
FT DISULFID 3 13 Cysteine amide.
FT MOD_RES 13 13
SQ SEQUENCE 13 AA; 1461 MW; DEF1931982457EBD CRC64;

Query Match 68.2%; Score 60; DB 1; Length 13;
Best Local Similarity 58.3%; Pred. No. 0.093;
Matches 7; Conservative 4; Mismatches 1; Indels 0; Gaps 0;

QY 2 CCNPACGRHYSC 13
||| ||| ||| |||
DB 2 CCHPACGKNFDC 13

RESULT 8
Q62985
ID Q62985 PRELIMINARY; PRT; 645 AA.
AC Q62985;

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DT 05-JUL-2004 (TREMBlrel. 27, Created)
DT 05-JUL-2004 (TREMBlrel. 27, Last sequence update)
DE Hypothetical protein P0683E12.13 (Hypothetical protein
DE P0689D06.17).
GN Name=P0683E12.13; Synonyms=P0689D06.17;
OS Oryza sativa (japonica cultivar-group);
OC Eukaryota; Viridiplantae; Streptophyta; Tracheophyta;
OC Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
OC Ehrhartoideae; Oryzaceae; Oryza.
OX NCBI_TaxID=39947;
RN [1]
RP SEQUENCE FROM N.A.
RA Sasaki T., Matsumoto T., Yamamoto K.;
RL Submitted (JAN-2002) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF004706; BAD03380.1; -.
DR EMBL; AF004621; BAD01742.1; -.
KW Hypothetical protein.
SQ SEQUENCE 645 AA; 7423D024641A070 CRC64;

Query Match 59.1%; Score 52; DB 2; Length 645;
Best Local Similarity 63.6%; Pred. No. 31;
Matches 7; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 ECCNPACGRHY 11
Db 226 QCCNASCGRFY 236

RESULT 9
QYQY1 PRELIMINARY; PRT; 229 AA.
ID Q9QY1
AC Q9QY1
DT 01-MAY-2000 (TREMBlrel. 13, Created)
DT 01-MAY-2000 (TREMBlrel. 13, Last sequence update)
DE Teneurin-2 protein (Fragment).
GN Name=Od22; Synonyms=teneurin-2;
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RA Rubin B.P., Tucker R.P., Martin D., Chiquet-Ehrismann R.;
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.
CC -1- SIMILARITY: Contains 7 EGF-like domains.
DR EMBL; AJ245710; CAB57282.1; -.
DR HSP; P00750; ITPG.
DR GO; GO:0016021; C:integral to membrane; TAS.
DR InterPro; IPR000742; EGF_2.
DR InterPro; IPR006209; EGF_like.
DR InterPro; IPR006210; IEGF.
DR Pfam; PF00008; EGF; 3.
DR SMART; SM00181; EGF; 6.
DR PROSITE; PS00022; EGF 1; 7.
DR PROSITE; PS01186; EGF 2; 6.
DR PROSITE; PS50026; EGF_3; 2.
KW EGF-like domain.
FT NON_TER 1
FT NON_TER 229
SQ SEQUENCE 229 AA; 23806 MW; E955AD7796DB8C25 CRC64;

Query Match 56.8%; Score 50; DB 2; Length 229;
Best Local Similarity 53.8%; Pred. No. 25;
Matches 7; Conservative 3; Mismatches 3; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13
Db 68 QCIDPSCGCGSC 80

RESULT 10
QYQY1 PRELIMINARY; PRT; 266 AA.
ID Q9RIK1
AC Q9RIK1
DT 01-MAY-2000 (TREMBlrel. 13, Created)
DT 01-MAY-2000 (TREMBlrel. 13, Last sequence update)
DT 01-MAY-2000 (TREMBlrel. 13, Last sequence update)
DE Neurestin beta (Fragment).
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_TaxID=10116;
RN [1]
RP SEQUENCE FROM N.A.
RA STRAIN-Sprague Dawley; TISSUE=Olfactory bulb;
RL MEDLINE=99350226; PubMed=10419693; DOI=10.1006/dbio.1999.9310;
RA Otaki J.M., Firestein S.;
RT "Neurestin: putative transmembrane molecule implicated in neuronal
RT development.";
RL Dev. Biol. 212:165-181(1999).
DR EMBL; AF086608; AAD47384.1; -.
DR HSP; P00750; ITPG.
DR InterPro; IPR000742; EGF_2.
DR InterPro; IPR006209; EGF_like.
DR InterPro; IPR009030; Grow_fac_recept.
DR Pfam; PF00008; EGF; 3.
DR PROSITE; PS00022; EGF 1; 6.
DR PROSITE; PS01186; EGF 2; 5.
DR PROSITE; PS50026; EGF_3; 2.
FT NON_TER 1
FT NON_TER 266
SQ SEQUENCE 266 AA; 27894 MW; 1FB76E485E16C60 CRC64;

Query Match 56.8%; Score 50; DB 2; Length 266;
Best Local Similarity 53.8%; Pred. No. 28;
Matches 7; Conservative 3; Mismatches 3; Indels 0; Gaps 0;

QY 1 ECCNPACGRHYSC 13
Db 65 QCIDPSCGCGSC 77

RESULT 11
QYQY1 PRELIMINARY; PRT; 337 AA.
ID Q9RIK0
AC Q9RIK0
DT 01-MAY-2000 (TREMBlrel. 13, Created)
DT 01-MAY-2000 (TREMBlrel. 13, Last sequence update)
DT 01-MAY-2000 (TREMBlrel. 13, Last sequence update)
DE Neurestin gamma (Fragment).
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_TaxID=10116;
RN [1]
RP SEQUENCE FROM N.A.
RA STRAIN-Sprague Dawley; TISSUE=Olfactory bulb;
RL MEDLINE=99350226; PubMed=10419693; DOI=10.1006/dbio.1999.9310;
RA Otaki J.M., Firestein S.;
RT "Neurestin: putative transmembrane molecule implicated in neuronal
RT development.";
RL Dev. Biol. 212:165-181(1999).
CC -1- SIMILARITY: Contains 8 EGF-like domains.
DR EMBL; AF086609; AAD47385.1; -.
DR HSP; P00750; ITPG.
DR InterPro; IPR000742; EGF_2.
DR InterPro; IPR006209; EGF_like.
DR InterPro; IPR006210; IEGF.
DR Pfam; PF00008; EGF; 4.
DR SMART; SM00181; EGF; 7.
DR PROSITE; PS00022; EGF 1; 8.
DR PROSITE; PS01186; EGF 2; 7.
DR PROSITE; PS50026; EGF_3; 3.

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KW EGF-like domain.
FT NON_TER 1
FT NON_TER 337
SQ SEQUENCE 337 AA; 35435 MW; AEED8484E9782029 CRC64;

Query Match
Best Local Similarity 56.8%; Score 50; DB 2; Length 337;
Matches 7; Conservative 3; Mismatches 3; Indels 0; Gaps 0;

QY 1 EECNPACGRHYS 13
Db :||:|||||
65 QCIDPSCGGHSC 77

RESULT 12
Q9PU49 PRELIMINARY; PRT; 831 AA.
AC Q9PU49;
DT 01-MAY-2000 (TRENBLrel. 13, Created)
DT 01-MAY-2000 (TRENBLrel. 13, Last sequence update)
DE 01-MAR-2004 (TRENBLrel. 26, Last annotation update)
DE Teneurin-2 protein.
GN Name=ten2;
OS Gallus gallus (Chicken).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae;
OC Gallus.
OX NCBI_TaxID=9031;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=20057765; PubMed=10588872; DOI=10.1006/dbio.1999.9503;
RA Rubin B.P., Tucker R.P., Martin D., Chiquet-Ehrismann R.;
RT "Teneurins: a novel family of neuronal cell surface proteins in
vertebrates, homologous to the Drosophila pair-rule gene product Ten-
m.";
RL Dev. Biol. 216:195-209 (1999).
CC -!- SIMILARITY: Contains 7 EGF-like domains.
DR EMBL; AJ245711; CAB57257.1; -.
DR HSP; P35555; IEMN.
DR InterPro; IPR000742; EGF 2.
DR InterPro; IPR006209; EGF like.
DR InterPro; IPR006210; IEGF.
DR InterPro; IPR009471; Ten_N.
DR Pfam; PF00008; EGF_3.
DR Pfam; PF06484; Ten_N; 1.
DR SMART; SM00181; EGF; 5.
DR PROSITE; PS00022; EGF_1; 7.
DR PROSITE; PS01186; EGF_2; 6.
DR PROSITE; PS00026; EGF_3; 2.
KW EGF-like domain.
SQ SEQUENCE 831 AA; 90359 MW; F166547445EAF7D2 CRC64;

Query Match
Best Local Similarity 56.8%; Score 50; DB 2; Length 831;
Matches 7; Conservative 3; Mismatches 3; Indels 0; Gaps 0;

QY 1 EECNPACGRHYS 13
Db :||:|||||
639 QCIDPSCGGHSC 651

RESULT 13
Q9R163 PRELIMINARY; PRT; 874 AA.
AC Q9R163;
DT 01-MAY-2000 (TRENBLrel. 13, Created)
DT 01-MAY-2000 (TRENBLrel. 13, Last sequence update)
DE 01-OCT-2003 (TRENBLrel. 25, Last annotation update)
DE Zinc finger protein ZFP112.
GN Name=Zfp112;
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
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OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=22683274; PubMed=12743021; DOI=10.1101/gr.963903;
RA Shannon M., Hamilton A.T., Gordon L., Branscomb E., Stubbs L.;
RT "Differential expansion of zinc-finger transcription factor loci in
homologous human and mouse gene clusters.";
RL Genome Res. 13:1097-1110 (2003).
DR EMBL; AF167319; AAD45928.1; -.
DR HSP; P08047; ISP2.
DR MGD; MGI:1929115; Zfp112.
DR GO; GO:0005634; C:nucleus; IEA.
DR GO; GO:0003676; F:nucleic acid binding; IEA.
DR GO; GO:0008270; F:zinc ion binding; IEA.
DR GO; GO:0006355; P:regulation of transcription, DNA-dependent; IEA.
DR InterPro; IPR001909; KRAB.
DR InterPro; IPR007087; Znf_C2H2.
DR InterPro; IPR007086; Znf_C2H2_sub.
DR Pfam; PF01352; KRAB; 1.
DR Pfam; PF00096; zf-C2H2; 12.
DR PRINTS; PR00048; ZINC_FINGER.
DR ProDom; PD000003; Znf_C2H2; 12.
DR SMART; SM00349; KRAB; 1.
DR SMART; SM00355; Znf_C2H2; 12.
DR PROSITE; PS00805; KRAB; 1.
DR PROSITE; PS00028; ZINC_FINGER_C2H2_1; 12.
DR PROSITE; PS00157; ZINC_FINGER_C2H2_2; 12.
SQ SEQUENCE 874 AA; 97922 MW; 13950D42395597F5 CRC64;

Query Match
Best Local Similarity 56.8%; Score 50; DB 2; Length 874;
Matches 7; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 3 CNPACGRHYS 12
Db |||||
441 CNPDCGNHFS 450

RESULT 14
Q9ULJ2 PRELIMINARY; PRT; 2144 AA.
AC Q9ULJ2;
DT 01-MAY-2000 (TRENBLrel. 13, Created)
DT 01-MAR-2003 (TRENBLrel. 23, Last sequence update)
DT 01-MAR-2004 (TRENBLrel. 26, Last annotation update)
DE KIAA1127 protein (Fragment).
GN Name=KIAA1127;
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Brain;
RX MEDLINE=20039618; PubMed=10574461;
RA Hirotsawa M., Nagase T., Ishikawa K., Kikuna R., Nomura N., Ohara O.;
RT "Characterization of cDNA clones selected by the Genemark analysis
from size-fractionated cDNA libraries from human brain.";
RL DNA Res. 6:329-336 (1999).
CC -!- SIMILARITY: Contains 6 EGF-like domains.
DR EMBL; AB032953; BAA86441.2; -.
DR InterPro; IPR000742; EGF 2.
DR InterPro; IPR006209; EGF like.
DR InterPro; IPR006210; IEGF.
DR InterPro; IPR001258; NHL.
DR InterPro; IPR009041; PMP_SGCI.
DR InterPro; IPR006530; YD.
DR Pfam; PF00008; EGF; 4.
DR Pfam; PF01436; NHL; 6.
DR Pfam; PF05593; RRS_repeat; 4.
DR SMART; SM00181; EGF; 6.
DR TIGRFAMs; TIGR01643; YD_repeat_2x; 5.
DR PROSITE; PS00022; EGF_1; 6.
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DR PROSITE; PS01186; EGF_2; 5.
DR PROSITE; PS00026; EGF_3; 3.
KW EGF-like domain.
FT NON TER 1
SQ SEQUENCE 2144 AA; 238606 MW; B193948001AE46B9 CRC64;

Query Match          56.8%; Score 50; DB 2; Length 2144;
Best Local Similarity 53.8%; Pred. No. 1.6e+02;
Matches 7; Conservative 3; Mismatches 3; Indels 0; Gaps 0;

QY 1 EECNPACGRHYSY 13
   :|:|:|:|
Db 9 QCIDFSCGGHSC 21

RESULT 15
Q9WTS5
ID Q9WTS5 PRELIMINARY; PRT; 2764 AA.
AC Q9WTS5;
DT 01-NOV-1999 (TRENBLrel. 12, Created)
DT 01-NOV-1999 (TRENBLrel. 12, Last sequence update)
DT 01-MAR-2004 (TRENBLrel. 26, Last annotation update)
DE Ten-m2.
GN Name=Odz2; Synonyms=ten-m2;
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=Balb/c; TISSUE=Brain;
RA Ohashi T., Zhou X., Feng K., Richter B., Moergelin M., Perez M.T.,
RA Su W., Chiquet-Ehrismann R., Rauch U., Faessler R.;
RT "Mouse Ten-m/Odz is a new family of dimeric type II transmembrane
RT proteins expressed in many tissues.";
RL J. Cell Biol. 0:0-0(1999).
CC -!- SIMILARITY: Contains 8 EGF-like domains.
DR EMBL; AB025411; BAA77397.1; -.
DR HSSP; P35555; 1EMN.
DR MGD; MGI:1345184; Odz2.
DR GO; GO:0016021; C:integral to membrane; TAS.
DR InterPro; IPR000742; EGF_2.
DR InterPro; IPR006209; EGF_like.
DR InterPro; IPR006210; IEGF.
DR InterPro; IPR001258; NHL.
DR InterPro; IPR009471; Ten_N.
DR InterPro; IPR006530; YD_.
DR Pfam; PF00008; EGF; 4.
DR Pfam; PF01436; NHL; 6.
DR Pfam; PF05593; RHS_repeat; 5.
DR Pfam; PF06484; Ten_N; 1.
DR SMART; SM00181; EGF; 7.
DR TIGRFAMs; TIGR01643; YD_repeat_2x; 5.
DR PROSITE; PS00022; EGF_1; 8.
DR PROSITE; PS01186; EGF_2; 7.
DR PROSITE; PS00026; EGF_3; 3.
KW EGF-like domain.
SQ SEQUENCE 2764 AA; 306465 MW; 73BA3D916D0F0344 CRC64;

Query Match          56.8%; Score 50; DB 2; Length 2764;
Best Local Similarity 53.8%; Pred. No. 2e+02;
Matches 7; Conservative 3; Mismatches 3; Indels 0; Gaps 0;

QY 1 EECNPACGRHYSY 13
   :|:|:|:|
Db 639 QCIDFSCGGHSC 651

Search completed: March 23, 2005, 00:16:43
Job time : 36.7096 secs
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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:44:17 ; Search time 38.8119 Seconds  
(without alignments)  
119.580 Million cell updates/sec

Title: US-09-787-082A-20  
Perfect score: 84  
Sequence: 1 GCCSDPRCAWC 12

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : A\_Geneseq\_16Dec04:\*  
1: Geneseqp1980s:\*  
2: Geneseqp1990s:\*  
3: Geneseqp2000s:\*  
4: Geneseqp2001s:\*  
5: Geneseqp2002s:\*  
6: Geneseqp2003as:\*  
7: Geneseqp2003bs:\*  
8: Geneseqp2004s:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	84	100.0	12	2 AAR75272	Aar75272 A-lineage
2	84	100.0	12	2 AAW24879	Aaw24879 Predatory
3	84	100.0	12	2 AAW09447	Aaw09447 Alpha-con
4	84	100.0	12	2 AAW12734	Aaw12734 Alpha-con
5	84	100.0	12	2 AAW57902	Aaw57902 Conotoxin
6	84	100.0	12	2 AAY24165	Aay24165 Alpha-con
7	84	100.0	12	4 AAB92215	Aab92215 Toxin pep
8	84	100.0	35	3 AAB21559	Aab21559 Cone snail
9	70	83.3	32	5 ABG99816	Abg99816 Conus sp
10	70	83.3	32	3 AAB21558	Aab21558 Cone snail
11	70	83.3	56	5 ABG99633	Abg99633 Conus sp
12	64	76.2	35	3 AAB21554	Aab21554 Cone snail
13	62	73.8	32	3 AAB21561	Aab21561 Cone snail
14	62	73.8	32	3 AAB21378	Aab21378 Cone snail
15	57	67.9	13	3 AAB21377	Aab21377 Cone snail
16	57	67.9	13	5 ABG99634	Abg99634 Conus sp
17	55	65.5	16	6 ABP60014	Abp60014 Alpha-con
18	55	65.5	16	6 ABP60016	Abp60016 Alpha-con
19	55	65.5	56	3 AAB21459	Aab21459 Cone snail
20	55	65.5	66	6 ABP60015	Abp60015 Alpha-con
21	54	64.3	12	3 AAB21380	Aab21380 Cone snail
22	53	63.1	19	5 ABG99819	Abg99819 Conus sp
23	53	63.1	61	5 ABG99637	Abg99637 Conus sp
24	51	60.7	12	3 AAB21373	Aab21373 Cone snail
25	51	60.7	77	5 ABP34327	Abp34327 Human ORF

26	50	59.5	22	3 AAB21621	Aab21621 Cone snail
27	50	59.5	39	3 AAB21602	Aab21602 Cone snail
28	50	59.5	39	3 AAB21604	Aab21604 Cone snail
29	50	59.5	39	3 AAB21601	Aab21601 Cone snail
30	50	59.5	84	4 AAU66999	Aau66999 Propionib
31	50	59.5	84	6 ABM63518	Abm63518 Propionib
32	50	59.5	126	7 ABO72980	AbO72980 Pseudomon
33	50	59.5	133	3 AAB27974	Aab27974 Human sec
34	50	59.5	133	4 AAU01087	Aau01087 Gene 9 Hu
35	50	59.5	133	6 ADA57615	Ada57615 Human sec
36	50	59.5	136	7 ADR09973	Adr09973 Novel pro
37	50	59.5	148	4 ABG12580	Abg12580 Novel hum
38	50	59.5	161	5 ABP41150	Abp41150 Human ova
39	50	59.5	314	7 ABO74377	AbO74377 Pseudomon
40	50	59.5	488	5 ADQ90948	Adq90948 Human 9-0
41	49	58.3	18	3 AAY87520	Aay87520 Mature co
42	49	58.3	19	5 ABB04156	Abb04156 Gamma-car
43	49	58.3	19	5 ABB04167	Abb04167 Cone snail
44	49	58.3	21	3 AAB21620	Aab21620 Cone snail
45	49	58.3	39	3 AAB21626	Aab21626 Cone snail

ALIGNMENTS

RESULT 1  
AAR75272  
ID AAR75272 standard; peptide; 12 AA.  
XX  
AC AAR75272;  
DT 21-DEC-1995 (first entry)  
XX  
DE A-lineage conotoxin U002 peptide.  
XX  
KW Conotoxin; neuromuscular; synapse; signal transmission; inhibitor.  
XX  
OS Conus imperialis.  
XX  
FH Key Location/Qualifiers  
FT Modified-site 12  
FT /note= "preferably amidated"  
XX  
PN W09511256-A1.  
XX  
PD 27-APR-1995.  
XX  
PF 19-OCT-1994; 94WO-US011927.  
XX  
PR 19-OCT-1993; 93US-00137800.  
XX  
PA (UTAH ) UNIV UTAH RES FOUND.  
XX  
PI Olivera BM, Cruz LJ, Hillyard DR, McIntosh JM, Santos AD;  
XX  
DR WPI; 1995-170189/22.  
XX  
PT New A-lineage conotoxin peptide(s) - which inhibit synaptic transmission  
PT at the neuromuscular junction or are active against potassium or sodium  
PT channels.  
XX  
PS Claim 1; Page 40; 66pp; English.  
XX  
CC The kappa-conotoxin, alpha conotoxin and alpha-like conotoxin peptides  
CC all belong to a group of peptides known as the A-lineage conotoxin  
CC peptides. The A-lineage conotoxin peptides have a wide variety of  
CC pharmacological uses. The A-lineage conotoxin peptides claimed (AAR75264-  
CC R75293) are useful for the inhibition of synaptic transmission at  
CC neuromuscular junctions by blocking nicotinic acetyl choline receptors  
CC and they also have activity against voltage-gated Na and K channels  
XX  
SQ Sequence 12 AA;

Query Match 100.0%; Score 84; DB 2; Length 12;  
 Best Local Similarity 100.0%; Pred. No. 0.00062;  
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCSDPRCAWRC 12  
 DB 1 GCCSDPRCAWRC 12

## RESULT 2

AAW24879  
 ID AAW24879 standard; peptide; 12 AA.

XX AC AAW24879;  
 XX DT 25-MAR-2003 (revised)  
 XX DT 15-OCT-1997 (first entry)  
 XX DE Predatory cone snail venom alpha-conotoxin U002.  
 XX KW Conotoxin; venom; predatory; cone snail; Conus; A-lineage; inhibitor;  
 XX KW synaptic transmission; neuromuscular junction; block; alpha-conotoxin;  
 XX KW nicotinic acetylcholine receptor; kappa-conotoxin;  
 XX KW voltage-sensitive potassium CHANNEL; sodium channel.

XX OS Conus imperialis.

XX FH Key Location/Qualifiers  
 XX FT Modified-site 12  
 XX FT /note= "amidated C-terminus"

XX PN US5633347-A.

XX PD 27-MAY-1997.

XX PF 07-JUN-1995; 95US-00480750.

XX PR 29-JUN-1993; 93US-00084848.

XX PR 19-OCT-1993; 93US-00137800.

XX PA (UTAH ) UNIV UTAH RES FOUND.

XX PI Hillyard DR, Cruz LJ, McIntosh JM, Santos AO, Olivera BM;

XX DR WPI; 1997-309336/28.

XX PT New kappa-conotoxin peptide (s) - present in venom of fish-hunting cone  
 XX PT snail.

XX PS Disclosure; Col 4; 37pp; English.

XX CC The peptides AAW24878-W24900 represent novel toxin peptides isolated from  
 XX CC the venom of various predatory cone snails of the genus Conus. The  
 XX CC peptides are A-lineage conotoxin peptides which fall into 3 groups  
 XX CC dependent on their amino acid sequences: (i) alpha-3/5 have a core  
 XX CC sequence CCXXCXCCXXC where X is any amino acid; (ii) alpha-4/7 have a  
 XX CC core sequence CCXXCXCCXXCCXXC; and (iii) kappa-7/21/3 have the core  
 XX CC sequence CCXXCXCCXXCCXXCCXXC. The peptide presented here was isolated  
 XX CC from Conus imperialis and falls into a novel alpha-4/3 category. Alpha-  
 XX CC conotoxin peptides are potent inhibitors of synaptic transmission at the  
 XX CC neuromuscular junction by blocking nicotinic acetylcholine receptors,  
 XX CC whereas kappa-conotoxins have activities against voltage-sensitive  
 XX CC potassium or sodium channels. (Updated on 25-MAR-2003 to correct PF  
 XX CC field.)

XX SQ Sequence 12 AA;

Query Match 100.0%; Score 84; DB 2; Length 12;  
 Best Local Similarity 100.0%; Pred. No. 0.00062;  
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCSDPRCAWRC 12  
 DB 1 GCCSDPRCAWRC 12

Db 1 GCCSDPRCAWRC 12

## RESULT 3

AAW09447  
 ID AAW09447 standard; peptide; 12 AA.

XX AC AAW09447;

XX DT 27-AUG-1997 (first entry)

XX DE Alpha-conotoxin peptide U002, targets nicotinic neuronal receptors.  
 XX KW Conotoxin; specificity; nicotinic neuronal receptor; affinity;  
 XX KW targetting; diagnosis; small cell lung carcinoma; SCLC.

XX OS Conus imperialis.

XX FH Key Location/Qualifiers  
 XX FT Modified-site 12  
 XX FT /note= "the C-terminus is preferably amidated"

XX PN W09640211-Al.

XX PD 19-DEC-1996.

XX PF 04-JUN-1996; 96WO-US007962.

XX PR 07-JUN-1995; 95US-00487174.

XX PA (UTAH ) UNIV UTAH RES FOUND.

XX PI Olivera BM, Cruz LJ, Hillyard DR, McIntosh JM, Santos AS;

XX DR WPI; 1997-051898/05.

XX PT New use of alpha-conotoxins MII and U002 - for treating and detecting  
 XX PT small cell lung carcinoma.

XX PS Example 1; Page 6; 29pp; English.

XX CC Alpha-conotoxins MII and U002 have a lower affinity for neuromuscular  
 XX CC receptors, than to nicotinic neuronal receptors. This makes them useful  
 XX CC for targeted treatment of small cell lung carcinoma (SCLC), as cells of  
 XX CC this carcinoma express cholinergic nicotinic receptors. The peptides are  
 XX CC administered intravenously or intramuscularly at a preferred dose of 500  
 XX CC nmoles. When labelled (e.g. with radioactive iodine), MII and U002 can be  
 XX CC used for detecting SCLC tumours

XX SQ Sequence 12 AA;

Query Match 100.0%; Score 84; DB 2; Length 12;  
 Best Local Similarity 100.0%; Pred. No. 0.00062;  
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCSDPRCAWRC 12

Db 1 GCCSDPRCAWRC 12

## RESULT 4

AAW12734  
 ID AAW12734 standard; peptide; 12 AA.

XX AC AAW12734;

XX DT 25-MAR-2003 (revised)

XX DT 16-APR-1997 (first entry)

XX DE Alpha-conotoxin peptide U002.

XX KW Polymerase chain reaction; PCR; primer; amplify; conotoxin; Conus;  
 XX KW inhibitor; synaptic transmission; neuromuscular junction; sodium channel;

KW nicotinic acetylcholine receptor; potassium channel; muscle relaxant;  
 KW myasthenia gravis; small cell lung cancer; therapy.  
 XX Conus imperialis.  
 OS  
 FH Key Location/Qualifiers  
 FT Modified-site 12  
 FT /note= "amidated"  
 XX  
 PN US5589340-A.  
 XX  
 PD 31-DEC-1996.  
 XX  
 PF 07-JUN-1995; 95US-00477383.  
 XX  
 PR 29-JUN-1993; 93US-00084848.  
 PR 19-OCT-1993; 93US-00137800.  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 XX  
 PI Santos AD, Hillyard DR, McIntosh JM, Olivera BM, Cruz LJ;  
 XX  
 DR WPI; 1997-076840/07.  
 XX  
 PT Identifying nucleic acid encoding A-lineage conotoxin peptide(s) by  
 PT amplification - uses primers corresponding to conserved regions in the  
 PT signal sequence and 3'-untranslated regions, useful e.g. in treatment of  
 PT small cell lung cancer.  
 XX  
 PS Disclosure; Col 4; 36pp; English.  
 XX  
 CC AAM12726-W12769 represent conotoxin peptides. This sequence represents  
 CC the U002 alpha-conotoxin peptide isolated from Conus imperialis. These  
 CC sequences are identified using the method of the invention. The method of  
 CC the invention is for identifying DNA encoding A-lineage conotoxin  
 CC peptides by subjecting Conus nucleic acid to amplification with primer  
 CC sequences (see AAT59714 and AAT59715). The primers are specific for the  
 CC signal sequence and 3'-untranslated (3'UTR) regions of the conotoxin  
 CC gene, which are highly homologous between conotoxins, and are therefore  
 CC suitable sites for detection. A-lineage conotoxins include alpha-  
 CC conotoxins, and kappa-conotoxins. Alpha-conotoxins are powerful  
 CC inhibitors of synaptic transmission at the neuromuscular junction, and  
 CC are usually nicotinic acetylcholine receptor blockers. Kappa-conotoxins  
 CC act on the voltage sensitive sodium and potassium channels. The  
 CC conotoxins identified can be used as muscle relaxants, in the diagnosis  
 CC of myasthenia gravis, and for the treatment or diagnosis of small cell  
 CC lung cancer. For the treatment of small cell lung cancer, the conotoxin  
 CC peptides act by binding to the nicotinic receptors, and thereby blocking  
 CC the nicotine/cytosine stimulated release of the mitogen 5-  
 CC hydroxytryptamine. (Updated on 25-MAR-2003 to correct PF field.)  
 XX  
 SQ Sequence 12 AA;  
 Query Match 100.0%; Score 84; DB 2; Length 12;  
 Best Local Similarity 100.0%; Pred. No. 0.00062;  
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 OY 1 GCCSDPRCAWRC 12  
 DB |||||  
 1 GCCSDPRCAWRC 12  
 RESULT 5  
 AAW57902  
 ID AAW57902 standard; peptide; 12 AA.  
 XX  
 AC AAW57902;  
 XX  
 DT 25-SEP-1998 (first entry)  
 XX  
 DE Conotoxin peptide ImI.  
 XX  
 KW Conotoxin peptide; ImI; MII; cardiovascular agent; altered heart rate;

KW altered blood pressure; nicotinic acetylcholine receptor antagonist;  
 KW B neurone blocker; venom; marine snail; C neurone blocker;  
 XX sympathetic impulse.  
 OS Conus imperialis.  
 FH Key Location/Qualifiers  
 FT Disulfide-bond 2..8  
 FT Disulfide-bond 3..12  
 XX  
 PN WO9822126-A1.  
 XX  
 PD 28-MAY-1998.  
 XX  
 PF 17-NOV-1997; 97WO-US020669.  
 XX  
 PR 18-NOV-1996; 96US-0031141P.  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 XX  
 PI McIntosh JM, Olivera BM, Yoshikami D;  
 XX  
 DR WPI; 1998-322346/28.  
 XX  
 PT Use of the conotoxin peptide(s) ImI and MII - as agents which can  
 PT regulate heart rate or blood pressure.  
 XX  
 PS Claim 1; Page 4; 24pp; English.  
 XX  
 CC This sequence represents the conotoxin peptide ImI. This sequence and the  
 CC MII conotoxin peptide (see AAW57903) can be used in the method of the  
 CC invention for the treatment of a patient who has an altered heart rate or  
 CC an altered blood pressure. The peptides are found in the venom of marine  
 CC snails of the genus Conus. They are active as nicotinic acetylcholine  
 CC receptor antagonists. They differentially block the B and C neurones, and  
 CC are thus able to differentially block sympathetic impulses to the heart  
 CC affecting the heart rate and blood pressure. The above agents are capable  
 CC of discretely affecting the heart rate or blood pressure, without  
 CC affecting other muscles  
 XX  
 SQ Sequence 12 AA;  
 Query Match 100.0%; Score 84; DB 2; Length 12;  
 Best Local Similarity 100.0%; Pred. No. 0.00062;  
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 OY 1 GCCSDPRCAWRC 12  
 DB |||||  
 1 GCCSDPRCAWRC 12  
 RESULT 6  
 AAY24165  
 ID AAY24165 standard; peptide; 12 AA.  
 XX  
 AC AAY24165;  
 XX  
 DT 10-SEP-1999 (first entry)  
 XX  
 DE Alpha-conotoxin peptide SEQ ID NO:13.  
 XX  
 KW Alpha-conotoxin; neuronal nicotinic acetylcholine receptor; nAChR;  
 KW small cell lung carcinoma; cardiovascular disorder; nicotine addiction;  
 KW gastric motility disorder; urinary incontinence; mood disorder;  
 KW bipolar disorder; unipolar depression; dysthymia;  
 KW seasonal affective disorder.  
 XX  
 OS Conus imperialis.  
 XX  
 PN WO9933482-A1.  
 XX  
 PD 08-JUL-1999.  
 XX

PF 23-DEC-1998; 98WO-US027367.  
 XX  
 PR 31-DEC-1997; 97US-0070153P.  
 PR 03-APR-1998; 98US-0080588P.  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 XX  
 PI Olivera BM, McIntosh JM, Yoshikami D, Cartier GE, Luo S;  
 XX WPI; 1999-405367/34.  
 DR  
 XX Alpha-conotoxin peptides that are used to treat disorders regulated at  
 PT neuronal nicotinic acetylcholine receptors.  
 XX  
 PS Claim 28; Page 6; 40pp; English.  
 XX  
 CC The present sequence represents a specifically claimed example of an  
 CC alpha-conotoxin, which can be used to treat disorders regulated at  
 CC neuronal nicotinic acetylcholine receptors (nAChR). The alpha-conotoxins  
 CC are useful for preparing a pharmaceutical composition for treating  
 CC disorders regulated at neuronal nAChR, especially alpha 3 beta 2, alpha 3  
 CC beta 4 or alpha 7-containing nAChR. Disorders that can be treated include  
 CC cardiovascular disorders, a gastric motility disorder, urinary  
 CC incontinence, nicotine addiction, a mood disorder or small cell lung  
 CC carcinoma. Mood disorders include bipolar disorder, unipolar depression,  
 CC dysthymia and seasonal affective disorder. The alpha-conotoxin  
 CC can be used for diagnosis of small cell lung carcinoma. The alpha-conotoxin  
 CC antagonists are able to discriminate between non-symmetrical ligand  
 CC binding interfaces present on the nAChR. The alpha-conotoxin has the  
 CC ability to potentially block any receptor containing an alpha beta subunit  
 CC interface, regardless of what other subunits may be present in the  
 CC receptor complex  
 XX  
 SQ Sequence 12 AA;  
 Query Match 100.0%; Score 84; DB 2; Length 12;  
 Best Local Similarity 100.0%; Pred. No. 0.00062;  
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 GCCSDPRCAWRC 12  
 DB |||||  
 1 GCCSDPRCAWRC 12  
 RESULT 7  
 ID AAB92215 standard; peptide; 12 AA.  
 XX  
 AC AAB92215;  
 XX  
 DT 22-JUN-2001 (first entry)  
 XX  
 DE Toxin peptide SEQ ID NO:1391.  
 XX  
 DE Protection; endogenous therapeutic peptide; peptidase; conjugation;  
 KW blood component; modification; succinimidyl; maleimido group; amino;  
 KW hydroxyl; thiol; hormone; growth factor; neurotransmitter.  
 XX  
 OS Homo sapiens.  
 OS Synthetic.  
 XX  
 PN WO200069900-A2.  
 XX  
 PD 23-NOV-2000.  
 XX  
 PF 17-MAY-2000; 2000WO-US013576.  
 XX  
 PR 17-MAY-1999; 99US-0134406P.  
 PR 10-SEP-1999; 99US-0153406P.  
 PR 15-OCT-1999; 99US-0159783P.  
 XX  
 PA (CONJ-) CONJUCHEM INC.  
 XX

PI Bridon DP, Ezrin AM, Milner PG, Holmes DL, Thibaudau K;  
 XX WPI; 2001-112059/12.  
 XX  
 PT Modifying and attaching therapeutic peptides to albumin prevents  
 PT peptidase degradation, useful for increasing length of in vivo activity.  
 XX  
 PS Disclosure; Page 651; 733pp; English.  
 XX  
 CC The present invention describes a modified therapeutic peptide (I)  
 CC comprising a therapeutically active amino acid region (III) and a  
 CC reactive group (II) (e.g. succinimidyl and maleimido groups) attached to  
 CC a less therapeutically active amino acid region (IV), which covalently  
 CC bonds with amino/hydroxyl/thiol groups on blood components to form a  
 CC peptidase stabilised therapeutic peptide composed of 3-50 amino acids.  
 CC (I) are useful for modifying therapeutic peptides e.g. hormones, growth  
 CC factors and neurotransmitters, to protect them from peptidase activity in  
 CC vivo for the treatment of various disorders. Endogenous therapeutic  
 CC peptides are not suitable as drug candidates as they require frequent  
 CC administration due to rapid degradation by peptidases in the body.  
 CC Modifying and attaching therapeutic peptides to albumin prevents or  
 CC reduces the action of peptidases to increase length of activity (half  
 CC life) and specificity as bonding to large molecules decreases  
 CC intracellular uptake and interference with physiological processes.  
 CC AAB90829 to AAB92441 represent peptides which can be used in the  
 CC exemplification of the present invention  
 XX  
 SQ Sequence 12 AA;  
 Query Match 100.0%; Score 84; DB 4; Length 12;  
 Best Local Similarity 100.0%; Pred. No. 0.00062;  
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 GCCSDPRCAWRC 12  
 DB |||||  
 1 GCCSDPRCAWRC 12  
 RESULT 8  
 AAB21559  
 ID AAB21559 standard; peptide; 35 AA.  
 XX  
 AC AAB21559;  
 XX  
 DT 19-JAN-2001 (first entry)  
 XX  
 DE Cone snail alpha-conotoxin SEQ ID NO: 246.  
 XX  
 KW Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.  
 XX  
 OS Conus regius.  
 XX  
 PN WO200044776-A1.  
 XX  
 PD 03-AUG-2000.  
 XX  
 PF 28-JAN-2000; 2000WO-US001979.  
 XX  
 PR 29-JAN-1999; 99US-0118381P.  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 PA (COGN-) COGNETIX INC.  
 XX  
 PI Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;  
 XX WPI; 2000-505965/45.  
 DR N-PSDB; AAA89455.  
 XX  
 PT alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 PT e.g. as neuromuscular blocking agents for use in surgery and for treating

PT unipolar depression.  
 PS Claim 39; Page 47; 229pp; English.  
 XX  
 CC The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.  
 CC These peptides are found in minute quantities in the venom of the snails,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC disorders, urinary incontinence, nicotine addiction, mood disorders such  
 CC as bipolar disorder, unipolar depression, dysthymia and seasonal  
 CC affective disorder, and small cell lung carcinoma  
 XX  
 SQ Sequence 35 AA;  
 Query Match 100.0%; Score 84; DB 3; Length 35;  
 Best Local Similarity 100.0%; Pred. No. 0.0015;  
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 GCCSDPRCAWRC 12  
 DB 23 GCCSDPRCAWRC 34  
 RESULT 9  
 ABG99816  
 ID ABG99816 standard; peptide; 13 AA.  
 XX  
 AC ABG99816;  
 XX  
 DT 06-AUG-2003 (revised)  
 DT 17-JAN-2003 (first entry)  
 XX  
 DE Conus sp conotoxin-associated peptide SEQ ID 601.  
 XX  
 KW Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;  
 KW ligand-gated ion channel modulator; pain-relief.  
 XX  
 OS Conus sp.  
 XX  
 PN WO200264740-A2.  
 XX  
 PD 22-AUG-2002.  
 XX  
 PF 11-FEB-2002; 2002WO-US003887.  
 XX  
 PR 09-FEB-2001; 2001US-0267408P.  
 XX  
 PA (COGN-) COGNETIX INC.  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 XX  
 PI Olivera BM, McIntosh JM, Watkins M, Garrett JE, Cruz LJ;  
 PI Grille M, Walker CS, Shetty R, Jones RM, Schoenfeld RM;  
 XX  
 DR WPI; 2002-706921/76.  
 XX  
 PT New cone snail conotoxin peptides, useful as a pain reliever for  
 PT alleviating pain in an individual suffering from pain or who is about to  
 PT be subjected to a pain-causing event, or for treating voltage-gated ion  
 PT channel disorders.  
 XX  
 PS Claim 1; Page 298; 305pp; English.  
 XX  
 CC This invention describes novel conotoxin peptides from the cone snail,  
 CC genus Conus which have analgesic activity and can act as a voltage-gated  
 CC ion channel modulator or a ligand-gated ion channel modulator. The  
 CC conotoxin peptide is useful as a pain-relieving agent for alleviating  
 CC pain in an individual who is either exhibiting pain or is about to be  
 CC subjected to a pain-causing event. The conotoxin peptide is also useful

CC for treating or preventing disorders associated with voltage-gated ion  
 CC channel disorders, ligand-gated ion channel disorders or receptor  
 CC disorders. The radiolabeled conotoxin peptide is also useful for  
 CC characterising a new site on these receptors or channels, and for  
 CC screening and identifying novel small molecules that interact with the  
 CC above-mentioned channels or receptors, which are monoamine transporters.  
 CC ABG99360-ABG99853 represent the conotoxin protein and peptides described  
 CC in the disclosure of the invention. (Updated on 06-AUG-2003 to correct OS  
 CC field.)  
 XX  
 SQ Sequence 13 AA;  
 Query Match 83.3%; Score 70; DB 5; Length 13;  
 Best Local Similarity 83.3%; Pred. No. 0.036;  
 Matches 10; Conservative 1; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 GCCSDPRCAWRC 12  
 DB 1 GCCSDPRCAWRC 12  
 RESULT 10  
 AAB21558  
 ID AAB21558 standard; peptide; 32 AA.  
 XX  
 AC AAB21558;  
 XX  
 DT 19-JAN-2001 (first entry)  
 XX  
 DE Cone snail alpha-conotoxin SEQ ID NO: 244.  
 XX  
 KW Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.  
 XX  
 OS Conus regius.  
 XX  
 PN WO200044776-A1.  
 XX  
 PD 03-AUG-2000.  
 XX  
 PF 28-JAN-2000; 2000WO-US001979.  
 XX  
 PR 29-JAN-1999; 99US-0118381P.  
 XX  
 PA (UTAH ) UNIV UTAH RES FOUND.  
 PA (COGN-) COGNETIX INC.  
 XX  
 PI Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;  
 XX  
 DR WPI; 2000-505965/45.  
 DR N-PSDB; AAA89454.  
 XX  
 PT alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 PT e.g. as neuromuscular blocking agents for use in surgery and for treating  
 PT unipolar depression.  
 XX  
 PS Claim 39; Page 47; 229pp; English.  
 XX  
 CC The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.  
 CC These peptides are found in minute quantities in the venom of the snails,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC disorders, urinary incontinence, nicotine addiction, mood disorders such  
 CC as bipolar disorder, unipolar depression, dysthymia and seasonal  
 CC affective disorder, and small cell lung carcinoma  
 XX

SQ Sequence 32 AA;

Query Match 83.3%; Score 70; DB 3; Length 32;  
 Best Local Similarity 83.3%; Pred. No. 0.076; 1; Mismatches 1; Indels 0; Gaps 0;  
 Matches 10; Conservative 1;

QY 1 GCCSDPRCAWRC 12  
 ||||| :|||  
 DB 20 GCCSDPRCRYRC 31

RESULT 11

ABG9633  
 ID ABG9633 standard; protein; 56 AA.

XX AC ABG9633;

XX 06-AUG-2003 (revised)

DT 17-JAN-2003 (first entry)

XX

DE Conus sp conotoxin-associated protein SEQ ID 401.

XX Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;  
 KW ligand-gated ion channel modulator; pain-relief.

XX OS Conus sp.

XX PN WO200264740-A2.

XX PD 22-AUG-2002.

XX PF 11-FEB-2002; 2002WO-US003887.

XX PR 09-FEB-2001; 2001US-0267408P.

XX PA (COGN-) COGNETIX INC.

XX PA (UTAH) UNIV UTAH RES FOUND.

XX PI Olivera BM, McIntosh JM, Watkins M, Garrett JE, Cruz LJ;

XX PI Grille M, Walker CS, Shetty R, Jones RM, Schoenfeld RM;

XX DR WPI; 2002-706921/76.

XX DR N-PSDB; ABX04953.

XX PT New cone snail conotoxin peptides, useful as a pain reliever for

PT alleviating pain in an individual suffering from pain or who is about to  
 PT be subjected to a pain-causing event, or for treating voltage-gated ion  
 PT channel disorders.

XX PS Claim 1; Page 255; 305pp; English.

CC This invention describes novel conotoxin peptides from the cone snail,  
 CC genus Conus which have analgesic activity and can act as a voltage-gated  
 CC ion channel modulator or a ligand-gated ion channel modulator. The  
 CC conotoxin peptide is useful as a pain-relieving agent for alleviating  
 CC pain in an individual who is either exhibiting pain or is about to be  
 CC subjected to a pain-causing event. The conotoxin peptide is also useful  
 CC for treating or preventing disorders associated with voltage-gated ion  
 CC channel disorders, ligand-gated ion channel disorders or receptor  
 CC disorders. The radiolabeled conotoxin peptide is also useful for  
 CC characterizing a new site on these receptors or channels, and for  
 CC screening and identifying novel small molecules that interact with the  
 CC above-mentioned channels or receptors, which are monoamine transporters.  
 CC ABG9360-ABG99853 represent the conotoxin protein and peptides described  
 CC in the disclosure of the invention. (Updated on 06-AUG-2003 to correct OS  
 CC field.)

XX SQ Sequence 56 AA;

Query Match 83.3%; Score 70; DB 5; Length 56;  
 Best Local Similarity 83.3%; Pred. No. 0.12;  
 Matches 10; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSDPRCAWRC 12

||||| :|||

DB 44 GCCSDPRCRYRC 55

RESULT 12

AAB21554

ID AAB21554 standard; peptide; 35 AA.

XX AC AAB21554;

XX

DT 19-JAN-2001 (first entry)

XX

DE Cone snail alpha-conotoxin SEQ ID NO: 236.

XX KW Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;

XX KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;

XX KW gastric motility disorder; urinary incontinence; nicotine addiction;

XX KW small cell lung carcinoma.

XX OS Conus imperialis.

XX PN WO200044776-A1.

XX PD 03-AUG-2000.

XX PF 28-JAN-2000; 2000WO-US001979.

XX PR 29-JAN-1999; 99US-0118381P.

XX PA (UTAH) UNIV UTAH RES FOUND.

XX PA (COGN-) COGNETIX INC.

XX PI Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;

XX DR WPI; 2000-505965/45.

XX DR N-PSDB; AAA89450.

XX PT alpha-conotoxin polypeptides derived from the venom of cone snails useful

PT e.g. as neuromuscular blocking agents for use in surgery and for treating  
 PT unipolar depression.

XX PS Claim 39; Page 46; 229pp; English.

CC The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.  
 CC These peptides are found in minute quantities in the venom of the snails,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC disorders, urinary incontinence, nicotine addiction, mood disorders such  
 CC as bipolar disorder, unipolar depression, dysthymia and seasonal  
 CC affective disorder, and small cell lung carcinoma

XX SQ Sequence 35 AA;

Query Match 76.2%; Score 64; DB 3; Length 35;  
 Best Local Similarity 81.8%; Pred. No. 0.45;  
 Matches 9; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 2 CCSDPRCAWRC 12

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DB 24 CCSDPRCRYRC 34

RESULT 13

AAB21378

ID AAB21378 standard; peptide; 13 AA.

XX

AC AAB21378;

XX 22-JAN-2001 (first entry)  
 XX Cone snail alpha-conotoxin SEQ ID NO: 10.  
 DE Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.  
 XX Conus regius.  
 OS  
 XX WO200044776-A1.  
 PN  
 XX 03-AUG-2000.  
 PD  
 XX 28-JAN-2000; 2000WO-US001979.  
 PF  
 XX 29-JAN-1999; 99US-0118381P.  
 PR  
 XX (UTAH) UNIV UTAH RES FOUND.  
 PA (COGN-) COGNETIX INC.  
 XX  
 XX Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;  
 PI WPI; 2000-505965/45.  
 DR N-PSDB; AAA89457.  
 XX  
 XX alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 PT e.g. as neuromuscular blocking agents for use in surgery and for treating  
 PT unipolar depression.  
 XX  
 PS Claim 2; Page 70; 229pp; English.  
 XX  
 CC The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.  
 CC These peptides are found in minute quantities in the venom of the snails,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC disorders, urinary incontinence, nicotine addiction, mood disorders such  
 CC as bipolar disorder, unipolar depression, dysthymia and seasonal  
 CC affective disorder, and small cell lung carcinoma  
 XX  
 SQ Sequence 13 AA;  
 Query Match 73.8%; Score 62; DB 3; Length 13;  
 Best Local Similarity 83.3%; Pred. No. 0.36;  
 Matches 10; Conservative 0; Mismatches 2; Indels 0; Gaps 0;  
 OY 1 GCCSDPRCAWRC 12  
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 DB 2 GCCSDXRCAXRC 13  
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 RESULT 14  
 AAB21561  
 ID AAB21561 standard; peptide; 32 AA.  
 AC AAB21561;  
 XX  
 XX 19-JAN-2001 (first entry)  
 DT  
 XX

DE Cone snail alpha-conotoxin SEQ ID NO: 250.  
 XX  
 KW Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.  
 XX Conus regius.  
 OS  
 XX WO200044776-A1.  
 PN  
 XX 03-AUG-2000.  
 PD  
 XX 28-JAN-2000; 2000WO-US001979.  
 PF  
 XX 29-JAN-1999; 99US-0118381P.  
 PR  
 XX (UTAH) UNIV UTAH RES FOUND.  
 PA (COGN-) COGNETIX INC.  
 XX  
 XX Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;  
 PI WPI; 2000-505965/45.  
 DR N-PSDB; AAA89457.  
 XX  
 XX alpha-conotoxin polypeptides derived from the venom of cone snails useful  
 PT e.g. as neuromuscular blocking agents for use in surgery and for treating  
 PT unipolar depression.  
 XX  
 PS Claim 39; Page 47; 229pp; English.  
 XX  
 CC The present invention relates to a number of alpha-conotoxin peptides and  
 CC their coding sequences from a number of different species of cone snail.  
 CC These peptides are found in minute quantities in the venom of the snails,  
 CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
 CC nervous system. They usually contain two disulphide bonds, which give  
 CC them defined conformations, a rarity in molecules this small. The alpha-  
 CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
 CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
 CC receptors, including cardiovascular disorders, gastric motility  
 CC disorders, urinary incontinence, nicotine addiction, mood disorders such  
 CC as bipolar disorder, unipolar depression, dysthymia and seasonal  
 CC affective disorder, and small cell lung carcinoma  
 XX  
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 Best Local Similarity 75.0%; Pred. No. 0.75;  
 Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;  
 OY 1 GCCSDPRCAWRC 12  
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 DB 20 GCCSDPRCKHQC 31  
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 RESULT 15  
 AAB21377  
 ID AAB21377 standard; peptide; 13 AA.  
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 AC AAB21377;  
 XX  
 XX 22-JAN-2001 (first entry)  
 DT  
 XX  
 XX Cone snail alpha-conotoxin SEQ ID NO: 9.  
 DE  
 XX  
 KW Cone snail; alpha-conotoxin; venom; disulphide bond; mood disorder;  
 KW neuronal nicotinic acetylcholine receptor; cardiovascular disorder;  
 KW gastric motility disorder; urinary incontinence; nicotine addiction;  
 KW small cell lung carcinoma.  
 XX Conus regius.  
 OS  
 XX  
 XX Key Location/Qualifiers  
 FH

FT Misc-difference 6 /label= Pro, OTHER  
FT /note= "hydroxy-Pro"  
FT Misc-difference 10  
FT /label= Tyr, OTHER  
FT /note= "nor-Tyr, mono-halo-Tyr, di-halo-Tyr, O-sulpho-  
FT Tyr, O-phospho-Tyr or nitro-Tyr"  
XX WO200044776-A1.  
PN  
XX  
XX  
PD 03-AUG-2000.  
XX  
XX PF 28-JAN-2000; 2000WO-US001979.  
XX  
XX PR 29-JAN-1999; 99US-0118381P.  
XX  
XX PA (UTAH ) UNIV UTAH RES FOUND.  
XX PA (COGN-) COGNETIX INC.  
XX  
XX PI Watkins M, Olivera BM, Hillyard DR, McIntosh JM, Jones RM;  
XX WPI; 2000-505965/45.  
XX  
XX alpha-conotoxin polypeptides derived from the venom of cone snails useful  
PT e.g. as neuromuscular blocking agents for use in surgery and for treating  
PT unipolar depression.  
XX  
PS Claim 2; Page 70; 229pp; English.  
XX  
XX The present invention relates to a number of alpha-conotoxin peptides and  
CC their coding sequences from a number of different species of cone snail.  
CC These peptides are found in minute quantities in the venom of the snails,  
CC and are targeted at the neuronal nicotinic acetylcholine receptors of the  
CC nervous system. They usually contain two disulphide bonds, which give  
CC them defined conformations, a rarity in molecules this small. The alpha-  
CC conotoxins can be used as neuromuscular blocking agents in surgery, and  
CC for treating disorders regulated at the neuronal nicotinic acetylcholine  
CC receptors, including cardiovascular disorders, gastric motility  
CC disorders, urinary incontinence, nicotine addiction, mood disorders such  
CC as bipolar disorder, unipolar depression, dysthymia and seasonal  
CC affective disorder, and small cell lung carcinoma  
XX  
SQ Sequence 13 AA;  
  
Query Match 67.9%; Score 57; DB 3; Length 13;  
Best Local Similarity 75.0%; Pred. No. 1.5;  
Matches 9; Conservative 0; Mismatches 3; Indels 0; Gaps 0;  
  
QY 1 GCCSDPRCAWRC 12  
Db 1 GCCSDXRCXRC 12  
  
Search completed: March 23, 2005, 00:03:08  
Job time : 40.8119 secs



GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:51:32 ; Search time 9.70297 Seconds  
(without alignments)  
92.321 Million cell updates/sec

Title: US-09-787-082A-20  
Perfect score: 84  
Sequence: 1 GCCSDPRCNC 12

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : Issued Patents AA:\*  
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3: /cgn2\_6/prodata/1/1aa/6A COMB.pep:\*  
4: /cgn2\_6/prodata/1/1aa/6B COMB.pep:\*  
5: /cgn2\_6/prodata/1/1aa/PCTUS COMB.pep:\*  
6: /cgn2\_6/prodata/1/1aa/backfiles1.pep:\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	84	100.0	12	1 US-08-137-800-12	Sequence 12, Appl
2	84	100.0	12	1 US-08-477-383-12	Sequence 12, Appl
3	84	100.0	12	1 US-08-487-174-12	Sequence 12, Appl
4	84	100.0	12	1 US-08-480-750-12	Sequence 12, Appl
5	84	100.0	12	3 US-09-219-446B-13	Sequence 13, Appl
6	84	100.0	12	5 PCT-US96-07962-9	Sequence 9, Appl
7	84	100.0	35	4 US-09-493-795B-246	Sequence 246, App
8	70	83.3	32	4 US-09-493-795B-244	Sequence 244, App
9	64	76.2	35	4 US-09-493-795B-236	Sequence 236, App
10	62	73.8	13	4 US-09-493-795B-10	Sequence 10, Appl
11	62	73.8	32	4 US-09-493-795B-250	Sequence 250, App
12	57	67.9	13	4 US-09-493-795B-9	Sequence 9, Appl
13	55	65.5	56	4 US-09-493-795B-125	Sequence 125, App
14	54	64.3	12	4 US-09-493-795B-12	Sequence 12, Appl
15	51	60.7	12	4 US-09-493-795B-5	Sequence 5, Appl
16	50	59.5	22	4 US-09-493-795B-370	Sequence 370, App
17	50	59.5	39	4 US-09-493-795B-330	Sequence 330, App
18	50	59.5	39	4 US-09-493-795B-332	Sequence 332, App
19	50	59.5	39	4 US-09-493-795B-336	Sequence 336, App
20	50	59.5	86	4 US-09-270-767-45087	Sequence 45087, A
21	50	59.5	126	4 US-09-252-991A-21726	Sequence 21726, A
22	50	59.5	314	4 US-09-252-991A-23723	Sequence 23723, A
23	49	58.3	19	3 US-09-136-769A-3	Sequence 3, Appl
24	49	58.3	19	3 US-09-136-769A-14	Sequence 14, Appl
25	49	58.3	21	4 US-09-493-795B-368	Sequence 368, App
26	49	58.3	39	4 US-09-493-795B-380	Sequence 380, App
27	49	58.3	63	4 US-09-493-795B-137	Sequence 137, App

28	49	58.3	64	4 US-09-493-795B-65	Sequence 65, Appl
29	49	58.3	64	4 US-09-493-795B-135	Sequence 135, App
30	49	58.3	64	4 US-09-493-795B-292	Sequence 292, App
31	48.5	57.7	40	4 US-09-493-795B-376	Sequence 376, App
32	48	57.1	14	4 US-09-493-795B-4	Sequence 4, Appl
33	48	57.1	21	4 US-09-493-795B-364	Sequence 364, App
34	48	57.1	36	4 US-09-493-795B-320	Sequence 320, App
35	48	57.1	62	4 US-09-493-795B-89	Sequence 89, Appl
36	48	57.1	120	4 US-09-252-991A-22015	Sequence 22015, A
37	47	56.0	35	4 US-09-493-795B-234	Sequence 234, App
38	47	56.0	146	4 US-09-252-991A-16656	Sequence 16656, A
39	46	54.8	24	4 US-09-493-795B-366	Sequence 366, App
40	46	54.8	30	3 US-09-286-691-10	Sequence 10, Appl
41	46	54.8	30	3 US-09-687-147-10	Sequence 10, Appl
42	46	54.8	38	4 US-09-493-795B-338	Sequence 338, App
43	46	54.8	40	4 US-09-493-795B-322	Sequence 322, App
44	46	54.8	42	4 US-09-493-795B-334	Sequence 334, App
45	46	54.8	61	4 US-09-493-795B-107	Sequence 107, App

ALIGNMENTS

RESULT 1  
US-08-137-800-12  
; Sequence 12, Application US/08137800  
; Patent No. 5514774  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Cruz, Lourdes J.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Santos, Aneufina D.  
; TITLE OF INVENTION: Conotoxin Peptides  
; NUMBER OF SEQUENCES: 53  
; CORRESPONDENCE ADDRESSES:  
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
; STREET: 1201 New York Avenue N.W., Suite 1000  
; CITY: Washington  
; STATE: DC  
; ZIP: 20005  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: WordPerfect 5.1  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/137,800  
FILING DATE: 19-OCT-1993  
CLASSIFICATION: 530  
ATTORNEY/AGENT INFORMATION:  
NAME: Ihnen, Jeffrey L.  
REGISTRATION NUMBER: 28,957  
REFERENCE/DOCKET NUMBER: 24260-104763  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-962-4810  
TELEFAX: 202-962-8300  
INFORMATION FOR SEQ ID NO: 12:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 12 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ANTI-SENSE: NO  
ORIGINAL SOURCE:  
ORGANISM: Conus imperialis  
US-08-137-800-12

Query Match 100.0%; Score 84; DB 1; Length 12;  
Best Local Similarity 100.0%; Pred. No. 3e-05;  
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCCSDPRCAWRC 12  
| | | | | | | | | |  
Db 1 GCCSDPRCAWRC 12

## RESULT 2

US-08-477-383-12  
; Sequence 12, Application US/08477383  
; Patent No. 559340  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Cruz, Lourdes J.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: Macintosh, J. Michael  
; APPLICANT: Santos, Ameurfino S.  
; TITLE OF INVENTION: Conotoxin Peptides  
; NUMBER OF SEQUENCES: 59  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
; STREET: 1201 New York Avenue, N.W., Suite 1000  
; CITY: Washington  
; STATE: DC  
; COUNTRY: U.S.A.  
; ZIP: 20005  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.30  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/477,383  
; FILING DATE: 07-JUN-1995  
; CLASSIFICATION: 435  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/137,800  
; FILING DATE: 19-OCT-1993  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/084,848  
; FILING DATE: 29-JUN-1993  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Innen, Jeffrey L.  
; REGISTRATION NUMBER: 28,957  
; REFERENCE/DOCKET NUMBER: 24260-107673  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 202-962-4810  
; TELEFAX: 202-962-8300  
; INFORMATION FOR SEQ ID NO: 12:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 12 amino acids  
; TYPE: amino acid  
; STRANDEDNESS:  
; TOPOLOGY: linear  
; MOLECULE TYPE: peptide  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; ORGANISM: Conus imperialis  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 12  
; OTHER INFORMATION: /note= "The C-terminus is  
; OTHER INFORMATION: preferably amidated."  
US-08-477-383-12

Query Match 100.0%; Score 84; DB 1; Length 12;  
Best Local Similarity 100.0%; Pred. No. 3e-05;  
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCCSDPRCAWRC 12  
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Db 1 GCCSDPRCAWRC 12

## RESULT 3

US-08-487-174-12  
; Sequence 12, Application US/08487174  
; Patent No. 5595972  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Cruz, Lourdes J.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: Macintosh, J. Michael  
; APPLICANT: Santos, Ameurfino S.  
; TITLE OF INVENTION: Conotoxin Peptides  
; NUMBER OF SEQUENCES: 59  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Venable, Baetjer, Howard & Civiletti  
; STREET: 1201 New York Avenue, N.W., Suite 1000  
; CITY: Washington  
; STATE: DC  
; COUNTRY: U.S.A.  
; ZIP: 20005  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.30  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/487,174  
; FILING DATE: 07-JUN-1995  
; CLASSIFICATION: 514  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/137,800  
; FILING DATE: 19-OCT-1993  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/084,848  
; FILING DATE: 29-JUN-1993  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Innen, Jeffrey L.  
; REGISTRATION NUMBER: 28,957  
; REFERENCE/DOCKET NUMBER: 24260-107673  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 202-962-4810  
; TELEFAX: 202-962-8300  
; INFORMATION FOR SEQ ID NO: 12:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 12 amino acids  
; TYPE: amino acid  
; STRANDEDNESS:  
; TOPOLOGY: linear  
; MOLECULE TYPE: peptide  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; ORGANISM: Conus imperialis  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 12  
; OTHER INFORMATION: /note= "The C-terminus is  
; OTHER INFORMATION: preferably amidated."  
US-08-487-174-12

Query Match 100.0%; Score 84; DB 1; Length 12;  
Best Local Similarity 100.0%; Pred. No. 3e-05;  
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCCSDPRCAWRC 12  
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Db 1 GCCSDPRCAWRC 12

## RESULT 4

US-08-480-750-12  
; Sequence 12, Application US/08480750  
; Patent No. 563347  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Cruz, Lourdes J.

APPLICANT: Hillyard, David R.  
APPLICANT: Macintosh, J. Michael  
APPLICANT: Santos, Aneurfin S.  
TITLE OF INVENTION: Conotoxin Peptides  
NUMBER OF SEQUENCES: 59  
CORRESPONDENCE ADDRESS:  
ADDRESSER: Venable, Baetjer, Howard & Civiletti  
STREET: 1201 New York Avenue, N.W., Suite 1000  
CITY: Washington  
STATE: DC  
COUNTRY: U.S.A.  
ZIP: 20005  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/480,750  
FILING DATE: 07-JUN-1995  
CLASSIFICATION: 530  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/137,800  
FILING DATE: 19-OCT-1993  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/084,848  
FILING DATE: 29-JUN-1993  
ATTORNEY/AGENT INFORMATION:  
NAME: Ihnen, Jeffrey L.  
REGISTRATION NUMBER: 28,957  
REFERENCE/DOCKET NUMBER: 24260-107673  
TELEPHONE: 202-962-4810  
TELEFAX: 202-962-8300  
INFORMATION FOR SEQ ID NO: 12:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 12 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
ORGANISM: Conus imperialis  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 12  
OTHER INFORMATION: /note= "The C-terminus is  
OTHER INFORMATION: preferably amidated."  
US-08-480-750-12

Query Match 100.0%; Score 84; DB 1; Length 12;  
Best Local Similarity 100.0%; Pred. No. 3e-05;  
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCCSDPRCAWRC 12  
Db 1 GCCSDPRCAWRC 12

RESULT 5  
US-09-219-446B-13  
Sequence 13, Application US/09219446B  
Patent No. 6265541  
GENERAL INFORMATION:  
APPLICANT: Olivera, Balomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Yoshikami, Doju  
APPLICANT: Cartier, G. Edward  
APPLICANT: Luo, Sign  
APPLICANT: University of Utah Research Foundation  
TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
FILE REFERENCE: Uses of Alpha-Conotoxins

CURRENT APPLICATION NUMBER: US/09/219,446B  
CURRENT FILING DATE: 1998-12-23  
PRIOR APPLICATION NUMBER: US 60/080,588  
PRIOR FILING DATE: 1998-04-03  
PRIOR APPLICATION NUMBER: US 60/070,153  
PRIOR FILING DATE: 1997-12-31  
NUMBER OF SEQ ID NOS: 13  
SOFTWARE: Patent In Ver. 2.0  
SEQ ID NO 13  
LENGTH: 12  
TYPE: PRT  
ORGANISM: Conus imperialis  
US-09-219-446B-13

Query Match 100.0%; Score 84; DB 3; Length 12;  
Best Local Similarity 100.0%; Pred. No. 3e-05;  
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCCSDPRCAWRC 12  
Db 1 GCCSDPRCAWRC 12

RESULT 6  
PCT-US96-07962-9  
Sequence 9, Application PC/TUS9607962  
GENERAL INFORMATION:  
APPLICANT: University of Utah Research Foundation  
TITLE OF INVENTION: Use of Conotoxin Peptides U002 and MII  
TITLE OF INVENTION: for Treating or Detecting Small-Cell Lung Carcinoma  
NUMBER OF SEQUENCES: 10  
CORRESPONDENCE ADDRESS:  
ADDRESSER: Venable, Baetjer, Howard & Civiletti  
STREET: 1201 New York Avenue, N.W., Suite 1000  
CITY: Washington  
STATE: DC  
COUNTRY: U.S.A.  
ZIP: 20005  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: MS-WINDOWS  
SOFTWARE: Word 6.0  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: PCT/US96/07962  
FILING DATE: 04-JUN-1996  
CLASSIFICATION:  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/487,174  
FILING DATE: 07-JUN-1995  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-962-4810  
TELEFAX: 202-962-8300  
INFORMATION FOR SEQ ID NO: 9:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 12 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
ORGANISM: Conus imperialis  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 12  
OTHER INFORMATION: /note= "The C-terminus is  
OTHER INFORMATION: preferably amidated."  
PCT-US96-07962-9

Query Match 100.0%; Score 84; DB 5; Length 12;  
Best Local Similarity 100.0%; Pred. No. 3e-05;  
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCSDPRCAWRC 12  
 Db 1 GCCSDPRCAWRC 12

## RESULT 7

US-09-493-795B-246  
 ; Sequence 246, Application US/09493795B  
 ; Patent No. 6797808  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: Hillyard, David R.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Jones, Robert M.  
 ; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
 ; FILE REFERENCE: 2314-179.A  
 ; CURRENT APPLICATION NUMBER: US/09/493,795B  
 ; PRIOR FILING DATE: 2000-01-28  
 ; PRIOR APPLICATION NUMBER: US 60/118,381  
 ; PRIOR FILING DATE: 1999-01-29  
 ; NUMBER OF SEQ ID NOS: 404  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 246  
 ; LENGTH: 35  
 ; TYPE: PRT  
 ; ORGANISM: Conus regius  
 US-09-493-795B-246

Query Match 100.0%; Score 84; DB 4; Length 35;  
 Best Local Similarity 100.0%; Pred. No. 7.8e-05;  
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCSDPRCAWRC 12  
 Db 23 GCCSDPRCAWRC 34

## RESULT 8

US-09-493-795B-244  
 ; Sequence 244, Application US/09493795B  
 ; Patent No. 6797808  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: Hillyard, David R.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Jones, Robert M.  
 ; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
 ; FILE REFERENCE: 2314-179.A  
 ; CURRENT APPLICATION NUMBER: US/09/493,795B  
 ; PRIOR FILING DATE: 2000-01-28  
 ; PRIOR APPLICATION NUMBER: US 60/118,381  
 ; PRIOR FILING DATE: 1999-01-29  
 ; NUMBER OF SEQ ID NOS: 404  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 244  
 ; LENGTH: 32  
 ; TYPE: PRT  
 ; ORGANISM: Conus regius  
 US-09-493-795B-244

Query Match 83.3%; Score 70; DB 4; Length 32;  
 Best Local Similarity 83.3%; Pred. No. 0.0052;  
 Matches 10; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSDPRCAWRC 12  
 Db 20 GCCSDPRCAWRC 31

## RESULT 9

US-09-493-795B-250

US-09-493-795B-236

; Sequence 236, Application US/09493795B  
 ; Patent No. 6797808  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: Hillyard, David R.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Jones, Robert M.  
 ; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
 ; FILE REFERENCE: 2314-179.A  
 ; CURRENT APPLICATION NUMBER: US/09/493,795B  
 ; PRIOR FILING DATE: 2000-01-28  
 ; PRIOR APPLICATION NUMBER: US 60/118,381  
 ; PRIOR FILING DATE: 1999-01-29  
 ; NUMBER OF SEQ ID NOS: 404  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 236  
 ; LENGTH: 35  
 ; TYPE: PRT  
 ; ORGANISM: Conus imperialis  
 US-09-493-795B-236

Query Match 76.2%; Score 64; DB 4; Length 35;  
 Best Local Similarity 81.8%; Pred. No. 0.035;  
 Matches 9; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 2 GCCSDPRCAWRC 12  
 Db 24 GCCSDPRCAWRC 34

## RESULT 10

US-09-493-795B-10  
 ; Sequence 10, Application US/09493795B  
 ; Patent No. 6797808  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: Hillyard, David R.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Jones, Robert M.  
 ; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
 ; FILE REFERENCE: 2314-179.A  
 ; CURRENT APPLICATION NUMBER: US/09/493,795B  
 ; CURRENT FILING DATE: 2000-01-28  
 ; PRIOR APPLICATION NUMBER: US 60/118,381  
 ; PRIOR FILING DATE: 1999-01-29  
 ; NUMBER OF SEQ ID NOS: 404  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 10  
 ; LENGTH: 13  
 ; TYPE: PRT  
 ; ORGANISM: Conus regius  
 ; FEATURE:  
 ; NAME/KEY: SITE  
 ; LOCATION: (7)..(11)  
 ; OTHER INFORMATION: Xaa at residue 7 is Pro or hydroxy-Pro; Xaa at  
 ; OTHER INFORMATION: residue 11 is Trp (D or L) or halo-Trp.  
 US-09-493-795B-10

Query Match 73.8%; Score 62; DB 4; Length 13;  
 Best Local Similarity 83.3%; Pred. No. 0.027;  
 Matches 10; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 GCCSDPRCAWRC 12  
 Db 2 GCCSDPRCAWRC 13

## RESULT 11

US-09-493-795B-250  
 ; Sequence 250, Application US/09493795B

; Patent No. 6797808  
; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-179.A  
; CURRENT APPLICATION NUMBER: US/09/493,795B  
; PRIOR FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; PRIOR FILING DATE: 1999-01-29  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 250  
; LENGTH: 32  
; TYPE: PRT  
; ORGANISM: Conus regius  
US-09-493-795B-250

Query Match 73.8%; Score 62; DB 4; Length 32;  
Best Local Similarity 75.0%; Pred. No. 0.059;  
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 GCCSDPRCAWRC 12  
Db 20 GCCSDPRCKHC 31

RESULT 12  
US-09-493-795B-9  
; Sequence 9, Application US/09493795B  
; Patent No. 6797808  
; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-179.A  
; CURRENT APPLICATION NUMBER: US/09/493,795B  
; CURRENT FILING DATE: 2000-01-28  
; PRIOR FILING DATE: 1999-01-29  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 9  
; LENGTH: 13  
; TYPE: PRT  
; ORGANISM: Conus regius  
; FEATURE:  
; NAME/KEY: SITE  
; LOCATION: (6)..(10)  
; OTHER INFORMATION: Xaa at residue 6 is Pro or hydroxy-Pro; Xaa at  
; OTHER INFORMATION: residue 10 is Tyr, nor-Tyr, mono-halo-Tyr,  
; OTHER INFORMATION: di-halo-Tyr, O-sulpho-Tyr, O-phospho-Tyr or  
; OTHER INFORMATION: nitro-Tyr.  
US-09-493-795B-9

Query Match 67.9%; Score 57; DB 4; Length 13;  
Best Local Similarity 75.0%; Pred. No. 0.12;  
Matches 9; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 GCCSDPRCAWRC 12  
Db 1 GCCSDXRCXRC 12

RESULT 13  
US-09-493-795B-125  
; Sequence 125, Application US/09493795B

; Patent No. 6797808  
; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-179.A  
; CURRENT APPLICATION NUMBER: US/09/493,795B  
; CURRENT FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; PRIOR FILING DATE: 1999-01-29  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 125  
; LENGTH: 56  
; TYPE: PRT  
; ORGANISM: Conus episcopatus  
US-09-493-795B-125

Query Match 65.5%; Score 55; DB 4; Length 56;  
Best Local Similarity 100.0%; Pred. No. 0.82;  
Matches 8; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCSDPRC 8  
Db 40 GCCSDPRC 47

RESULT 14  
US-09-493-795B-12  
; Sequence 12, Application US/09493795B  
; Patent No. 6797808  
; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-179.A  
; CURRENT APPLICATION NUMBER: US/09/493,795B  
; CURRENT FILING DATE: 2000-01-28  
; PRIOR FILING DATE: 1999-01-29  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 12  
; LENGTH: 12  
; TYPE: PRT  
; ORGANISM: Conus regius  
; FEATURE:  
; NAME/KEY: SITE  
; LOCATION: (6)..(9)  
; OTHER INFORMATION: Xaa at residue 6 is Pro or hydroxy-Pro; Xaa at  
; OTHER INFORMATION: residue 9 is Lys, N-methyl-Lys, N,N-dimethyl-Lys  
; OTHER INFORMATION: or N,N,N-trimethyl-Lys.  
US-09-493-795B-12

Query Match 64.3%; Score 54; DB 4; Length 12;  
Best Local Similarity 66.7%; Pred. No. 0.29;  
Matches 8; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 GCCSDPRCAWRC 12  
Db 1 GCCSDXRCXHC 12

RESULT 15  
US-09-493-795B-5  
; Sequence 5, Application US/09493795B  
; Patent No. 6797808

GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-179.A  
; CURRENT APPLICATION NUMBER: US/09/493,795B  
; CURRENT FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; PRIOR FILING DATE: 1999-01-29  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 5  
; LENGTH: 12  
; TYPE: PRT  
; ORGANISM: Conus imperialis  
; FEATURE:  
; NAME/KEY: SITE  
; LOCATION: (10)  
; OTHER INFORMATION: Xaa at residue 10 is Trp (D or L) or halo-Trp.  
US-09-493-795B-5

Query Match 60.7%; Score 51; DB 4; Length 12;  
Best Local Similarity 72.7%; Pred. No. 0.72;  
Matches 8; Conservative 0; Mismatches 3; Indels 0; Gaps 0;  
QY 2 CCSDPRCAWRC 12  
Db 2 CCSDRRCXRC 12

Search completed: March 23, 2005, 00:20:51  
Job time : 9.70297 secs

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 23:46:47 ; Search time 27.3663 Seconds

(without alignments)  
144.941 Million cell updates/sec

Title: US-09-787-082A-20

Perfect score: 84

Sequence: 1 GCCSDPRCAWRC 12

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1401741 seqs, 330541175 residues

Total number of hits satisfying chosen parameters: 1401741

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Published Applications AA.\*

- 1: /cgn2\_6/ptodata/2/pubpaa/US07\_PUBCOMB.pep.\*
- 2: /cgn2\_6/ptodata/2/pubpaa/PCT\_NEW\_PUB.pep.\*
- 3: /cgn2\_6/ptodata/2/pubpaa/US06\_NEW\_PUB.pep.\*
- 4: /cgn2\_6/ptodata/2/pubpaa/US06\_PUBCOMB.pep.\*
- 5: /cgn2\_6/ptodata/2/pubpaa/US07\_NEW\_PUB.pep.\*
- 6: /cgn2\_6/ptodata/2/pubpaa/PCTUS\_PUBCOMB.pep.\*
- 7: /cgn2\_6/ptodata/2/pubpaa/US08\_NEW\_PUB.pep.\*
- 8: /cgn2\_6/ptodata/2/pubpaa/US08\_PUBCOMB.pep.\*
- 9: /cgn2\_6/ptodata/2/pubpaa/US09A\_PUBCOMB.pep.\*
- 10: /cgn2\_6/ptodata/2/pubpaa/US09B\_PUBCOMB.pep.\*
- 11: /cgn2\_6/ptodata/2/pubpaa/US09C\_PUBCOMB.pep.\*
- 12: /cgn2\_6/ptodata/2/pubpaa/US09\_NEW\_PUB.pep.\*
- 13: /cgn2\_6/ptodata/2/pubpaa/US10A\_PUBCOMB.pep.\*
- 14: /cgn2\_6/ptodata/2/pubpaa/US10B\_PUBCOMB.pep.\*
- 15: /cgn2\_6/ptodata/2/pubpaa/US10C\_PUBCOMB.pep.\*
- 16: /cgn2\_6/ptodata/2/pubpaa/US10D\_PUBCOMB.pep.\*
- 17: /cgn2\_6/ptodata/2/pubpaa/US10\_NEW\_PUB.pep.\*
- 18: /cgn2\_6/ptodata/2/pubpaa/US11\_NEW\_PUB.pep.\*
- 19: /cgn2\_6/ptodata/2/pubpaa/US60\_NEW\_PUB.pep.\*
- 20: /cgn2\_6/ptodata/2/pubpaa/US60\_PUBCOMB.pep.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	84	100.0	12	9	US-09-897-465-13
2	84	100.0	12	16	US-10-827-369-13
3	84	100.0	35	17	US-10-895-372-246
4	70	83.3	32	14	US-10-072-602B-601
5	70	83.3	32	17	US-10-895-372-244
6	70	83.3	56	14	US-10-072-602B-401
7	64	76.2	35	17	US-10-895-372-236
8	62	73.8	13	17	US-10-895-372-10
9	62	73.8	32	17	US-10-895-372-250
10	57	67.9	13	14	US-10-072-602B-402
11	57	67.9	13	17	US-10-895-372-9
12	55	65.5	56	17	US-10-895-372-125
13	54	64.3	12	17	US-10-895-372-12

14	53	63.1	19	14	US-10-072-602B-604	Sequence 604, App
15	53	63.1	61	14	US-10-072-602B-406	Sequence 406, App
16	51	60.7	12	17	US-10-895-372-5	Sequence 5, Appli
17	51	60.7	77	11	US-09-864-408A-6600	Sequence 6600, Ap
18	50	59.5	22	17	US-10-895-372-370	Sequence 370, App
19	50	59.5	39	17	US-10-895-372-330	Sequence 330, App
20	50	59.5	39	17	US-10-895-372-332	Sequence 332, App
21	50	59.5	39	17	US-10-895-372-336	Sequence 336, App
22	50	59.5	161	15	US-10-264-049-2282	Sequence 2282, Ap
23	49	58.3	21	17	US-10-895-372-368	Sequence 368, App
24	49	58.3	39	17	US-10-895-372-380	Sequence 380, App
25	49	58.3	63	17	US-10-895-372-137	Sequence 137, App
26	49	58.3	64	9	US-09-864-761-35626	Sequence 35626, A
27	49	58.3	64	17	US-10-895-372-65	Sequence 65, Appl
28	49	58.3	64	17	US-10-895-372-135	Sequence 135, App
29	49	58.3	64	17	US-10-895-372-292	Sequence 292, App
30	49	58.3	224	16	US-10-767-701-57719	Sequence 57719, A
31	48.5	57.7	40	17	US-10-895-372-376	Sequence 376, App
32	48	57.1	14	17	US-10-895-372-4	Sequence 4, Appli
33	48	57.1	21	17	US-10-895-372-364	Sequence 364, App
34	48	57.1	36	17	US-10-895-372-320	Sequence 320, App
35	48	57.1	62	17	US-10-895-372-89	Sequence 89, Appl
36	48	57.1	248	15	US-10-425-114-64833	Sequence 64833, A
37	47	56.0	17	14	US-10-072-602B-609	Sequence 609, App
38	47	56.0	35	17	US-10-895-372-234	Sequence 234, App
39	47	56.0	51	15	US-10-424-599-167827	Sequence 167827,
40	47	56.0	61	14	US-10-072-602B-419	Sequence 419, App
41	47	56.0	113	15	US-10-424-599-150378	Sequence 150378,
42	46	54.8	15	14	US-10-072-602B-616	Sequence 616, App
43	46	54.8	16	14	US-10-072-602B-617	Sequence 617, App
44	46	54.8	24	17	US-10-895-372-366	Sequence 366, App
45	46	54.8	38	17	US-10-895-372-338	Sequence 338, App

ALIGNMENTS

RESULT 1  
US-09-897-465-13  
; Sequence 13, Application US/09897465  
; Patent No. US20020022715A1  
; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Luo, Sigin  
; APPLICANT: University of Utah Research Foundation  
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
; FILE REFERENCE: Uses of Alpha-Conotoxins  
; CURRENT APPLICATION NUMBER: US/09/897,465  
; CURRENT FILING DATE: 2001-07-03  
; PRIOR APPLICATION NUMBER: US 60/080,588  
; PRIOR FILING DATE: 1998-04-03  
; PRIOR APPLICATION NUMBER: US 60/070,153  
; PRIOR FILING DATE: 1997-12-31  
; NUMBER OF SEQ ID NOS: 13  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 13  
; LENGTH: 12  
; TYPE: PRT  
; ORGANISM: Conus imperialis  
US-09-897-465-13

Query Match 100.0%; Score 84; DB 9; Length 12;  
Best Local Similarity 100.0%; Pred. No. 0.00038;  
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCSDPRCAWRC 12

DB 1 GCCSDPRCAWRC 12

## RESULT 2

US-10-827-369-13  
; Sequence 13, Application US/10827369  
; Publication No. US20040192610A1

; GENERAL INFORMATION:  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Yoshikami, Doju  
; APPLICANT: Cartier, G. Edward  
; APPLICANT: Luo, Siqin  
; APPLICANT: University of Utah Research Foundation  
; TITLE OF INVENTION: Uses of Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-278  
; CURRENT APPLICATION NUMBER: US/10/827,369  
; PRIOR FILING DATE: 2004-04-20  
; PRIOR APPLICATION NUMBER: US 09/897,465  
; PRIOR FILING DATE: 2001-07-03  
; PRIOR APPLICATION NUMBER: US 09/219,446  
; PRIOR FILING DATE: 1998-12-23  
; PRIOR APPLICATION NUMBER: US 60/080,588  
; PRIOR FILING DATE: 1998-04-03  
; PRIOR APPLICATION NUMBER: US 60/070,153  
; PRIOR FILING DATE: 1997-12-31  
; NUMBER OF SEQ ID NOS: 13  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 13  
; LENGTH: 12  
; TYPE: PRT  
; ORGANISM: Conus imperialis  
US-10-827-369-13

Query Match 100.0%; Score 84; DB 16; Length 12;  
Best Local Similarity 100.0%; Pred. No. 0.00038;  
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCSDPRCAWRC 12  
||| ||||| |||||  
Db 1 GCCSDPRCAWRC 12

## RESULT 3

US-10-895-372-246  
; Sequence 246, Application US/10895372  
; Publication No. US20050032705A1

; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-286  
; CURRENT APPLICATION NUMBER: US/10/895,372  
; CURRENT FILING DATE: 2004-07-21  
; PRIOR APPLICATION NUMBER: US 09/493,795  
; PRIOR FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; PRIOR FILING DATE: 1999-01-29  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 246  
; LENGTH: 35  
; TYPE: PRT  
; ORGANISM: Conus regius  
US-10-895-372-246

Query Match 100.0%; Score 84; DB 17; Length 35;  
Best Local Similarity 100.0%; Pred. No. 0.00083;  
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCSDPRCAWRC 12  
||| ||||| |||||  
Db 23 GCCSDPRCAWRC 34

## RESULT 4

US-10-072-602B-601  
; Sequence 601, Application US/10072602B  
; Publication No. US20030109670A1

; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Cruz, Lourdes J.  
; APPLICANT: Grilley, Michelle  
; APPLICANT: Schoenfeld, Robert M.  
; APPLICANT: Walker, Craig  
; APPLICANT: Shetty, Reshma  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Cone Snail Peptides  
; FILE REFERENCE: 2314-249  
; CURRENT APPLICATION NUMBER: US/10/072,602B  
; CURRENT FILING DATE: 2002-02-11  
; PRIOR APPLICATION NUMBER: US 60/267,408  
; PRIOR FILING DATE: 2001-02-09  
; NUMBER OF SEQ ID NOS: 638  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 601  
; LENGTH: 13  
; TYPE: PRT  
; ORGANISM: Conus jdedius  
US-10-072-602B-601

Query Match 83.3%; Score 70; DB 14; Length 13;  
Best Local Similarity 83.3%; Pred. No. 0.023;  
Matches 10; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSDPRCAWRC 12  
||| ||||| |||||  
Db 1 GCCSDPRCAWRC 12

## RESULT 5

US-10-895-372-244  
; Sequence 244, Application US/10895372  
; Publication No. US20050032705A1

; GENERAL INFORMATION:  
; APPLICANT: Watkins, Maren  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: Hillyard, David R.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Jones, Robert M.  
; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
; FILE REFERENCE: 2314-286  
; CURRENT APPLICATION NUMBER: US/10/895,372  
; CURRENT FILING DATE: 2004-07-21  
; PRIOR APPLICATION NUMBER: US 09/493,795  
; PRIOR FILING DATE: 2000-01-28  
; PRIOR APPLICATION NUMBER: US 60/118,381  
; PRIOR FILING DATE: 1999-01-29  
; NUMBER OF SEQ ID NOS: 404  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 244  
; LENGTH: 32  
; TYPE: PRT  
; ORGANISM: Conus regius  
US-10-895-372-244

Query Match 83.3%; Score 70; DB 17; Length 32;  
Best Local Similarity 83.3%; Pred. No. 0.045;  
Matches 10; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSDPRCAWRC 12



Db 20 GCCSDPRCWRRC 31  
 |||||:|

## RESULT 6

US-10-072-602B-401  
 ; Sequence 401, Application US/10072602B  
 ; Publication No. US20030109670A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: University of Utah Research Foundation  
 ; APPLICANT: Cognetix, Inc.  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Garrett, James E.  
 ; APPLICANT: Cruz, Lourdes J.  
 ; APPLICANT: Grilley, Michelle  
 ; APPLICANT: Schoenfeld, Robert M.  
 ; APPLICANT: Walker, Craig  
 ; APPLICANT: Shetty, Reshma  
 ; APPLICANT: Jones, Robert M.  
 ; TITLE OF INVENTION: Cone Snail Peptides  
 ; FILE REFERENCE: 2314-249  
 ; CURRENT APPLICATION NUMBER: US/10/072,602B  
 ; CURRENT FILING DATE: 2002-02-11  
 ; PRIOR APPLICATION NUMBER: US 60/267,408  
 ; PRIOR FILING DATE: 2001-02-09  
 ; NUMBER OF SEQ ID NOS: 638  
 ; SOFTWARE: PatentIn version 3.0  
 ; SEQ ID NO 401  
 ; LENGTH: 56  
 ; TYPE: PRT  
 ; ORGANISM: Conus jdedius  
 US-10-072-602B-401

Query Match 83.3%; Score 70; DB 14; Length 56;  
 Best Local Similarity 83.3%; Pred. No. 0.068;  
 Matches 10; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 GCCSDPRCWRRC 12  
 |||||:|  
 Db 44 GCCSDPRCWRRC 55

## RESULT 7

US-10-895-372-236  
 ; Sequence 236, Application US/10895372  
 ; Publication No. US20050032705A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: Hillyard, David R.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Jones, Robert M.  
 ; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
 ; FILE REFERENCE: 2314-286  
 ; CURRENT APPLICATION NUMBER: US/10/895,372  
 ; CURRENT FILING DATE: 2004-07-21  
 ; PRIOR APPLICATION NUMBER: US 09/493,795  
 ; PRIOR FILING DATE: 2000-01-28  
 ; PRIOR APPLICATION NUMBER: US 60/118,381  
 ; PRIOR FILING DATE: 1999-01-29  
 ; NUMBER OF SEQ ID NOS: 404  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 236  
 ; LENGTH: 35  
 ; TYPE: PRT  
 ; ORGANISM: Conus imperialis  
 US-10-895-372-236

Query Match 76.2%; Score 64; DB 17; Length 35;  
 Best Local Similarity 81.8%; Pred. No. 0.28;  
 Matches 9; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 2 CCSDPRCWRRC 12  
 |||||  
 Db 24 CCSDRCWRRC 34

## RESULT 8

US-10-895-372-10  
 ; Sequence 10, Application US/10895372  
 ; Publication No. US20050032705A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: Hillyard, David R.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Jones, Robert M.  
 ; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
 ; FILE REFERENCE: 2314-286  
 ; CURRENT APPLICATION NUMBER: US/10/895,372  
 ; CURRENT FILING DATE: 2004-07-21  
 ; PRIOR APPLICATION NUMBER: US 09/493,795  
 ; PRIOR FILING DATE: 2000-01-28  
 ; PRIOR APPLICATION NUMBER: US 60/118,381  
 ; PRIOR FILING DATE: 1999-01-29  
 ; NUMBER OF SEQ ID NOS: 404  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 10  
 ; LENGTH: 13  
 ; TYPE: PRT  
 ; ORGANISM: Conus regius  
 ; FEATURE:  
 ; NAME/KEY: SITE  
 ; LOCATION: (7)..(11)  
 ; OTHER INFORMATION: Xaa at residue 7 is Pro or hydroxy-Pro; Xaa at  
 ; OTHER INFORMATION: residue 11 is Trp (D or L) or halo-Trp.  
 US-10-895-372-10

Query Match 73.8%; Score 62; DB 17; Length 13;  
 Best Local Similarity 83.3%; Pred. No. 0.24;  
 Matches 10; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 GCCSDPRCWRRC 12  
 |||||  
 Db 2 GCCSDRCWRRC 13

## RESULT 9

US-10-895-372-250  
 ; Sequence 250, Application US/10895372  
 ; Publication No. US20050032705A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: Hillyard, David R.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Jones, Robert M.  
 ; TITLE OF INVENTION: Alpha-Conotoxin Peptides  
 ; FILE REFERENCE: 2314-286  
 ; CURRENT APPLICATION NUMBER: US/10/895,372  
 ; CURRENT FILING DATE: 2004-07-21  
 ; PRIOR APPLICATION NUMBER: US 09/493,795  
 ; PRIOR FILING DATE: 2000-01-28  
 ; PRIOR APPLICATION NUMBER: US 60/118,381  
 ; PRIOR FILING DATE: 1999-01-29  
 ; NUMBER OF SEQ ID NOS: 404  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 250  
 ; LENGTH: 32  
 ; TYPE: PRT  
 ; ORGANISM: Conus regius  
 US-10-895-372-250

Query Match 73.8%; Score 62; DB 17; Length 32;

```

RESULT 13
US-10-895-372-12
; Sequence 12, Application US/10895372
; Publication No. US20050032705A1
; GENERAL INFORMATION:
; APPLICANT: Watkins, Maren
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: Hillyard, David R.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: Alpha-Conotoxin Peptides
; FILE REFERENCE: 2314-286
; CURRENT APPLICATION NUMBER: US/10/895,372
; CURRENT FILING DATE: 2004-07-21
; PRIOR APPLICATION NUMBER: US 09/493,795

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```

; PRIOR FILING DATE: 2000-01-28
; PRIOR APPLICATION NUMBER: US 60/118,381
; PRIOR FILING DATE: 1999-01-29
; NUMBER OF SEQ ID NOS: 404
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 12
; LENGTH: 12
; TYPE: PRT
; ORGANISM: Conus regius
; FEATURE:
; NAME/KEY: SITE
; LOCATION: (6)..(9)
; OTHER INFORMATION: Xaa at residue 6 is pro or hydroxy-Pro; Xaa at
; OTHER INFORMATION: residue 9 is Lys, N-methyl-Lys, N,N-dimethyl-Lys
; OTHER INFORMATION: or N,N,N-trimethyl-Lys.
US-10-895-372-12

Query Match      64.3%; Score 54; DB 17; Length 12;
Best Local Similarity 66.7%; Pred. No. 2.3;
Matches 8; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY      1 GCCSDPRCAWRC 12
Db      1 GCCSDXRCXHC 12
      ||||| ||| :|
      ||||| ||| :|

RESULT 14
US-10-072-602B-604
; Sequence 604, Application US/10072602B
; Publication No. US20030109670A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J, Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Cruz, Lourdes J.
; APPLICANT: Grilley, Michelle
; APPLICANT: Schoenfeld, Robert M.
; APPLICANT: Walker, Craig
; APPLICANT: Shetty, Reshma
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: Cone Snail Peptides
; FILE REFERENCE: 2314-249
; CURRENT APPLICATION NUMBER: US/10/072,602B
; CURRENT FILING DATE: 2002-02-11
; PRIOR APPLICATION NUMBER: US 60/267,408
; PRIOR FILING DATE: 2001-02-09
; NUMBER OF SEQ ID NOS: 638
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 604
; LENGTH: 19
; TYPE: PRT
; ORGANISM: Conus quercinus
US-10-072-602B-604

Query Match      63.1%; Score 53; DB 14; Length 19;
Best Local Similarity 88.9%; Pred. No. 4.3;
Matches 8; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY      1 GCCSDPRCA 9
Db      2 GCCSDPACA 10
      ||||| |||
      ||||| |||

RESULT 15
US-10-072-602B-406
; Sequence 406, Application US/10072602B
; Publication No. US20030109670A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.

```

```

; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J, Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Cruz, Lourdes J.
; APPLICANT: Grilley, Michelle
; APPLICANT: Schoenfeld, Robert M.
; APPLICANT: Walker, Craig
; APPLICANT: Shetty, Reshma
; APPLICANT: Jones, Robert M.
; TITLE OF INVENTION: Cone Snail Peptides
; FILE REFERENCE: 2314-249
; CURRENT APPLICATION NUMBER: US/10/072,602B
; CURRENT FILING DATE: 2002-02-11
; PRIOR APPLICATION NUMBER: US 60/267,408
; PRIOR FILING DATE: 2001-02-09
; NUMBER OF SEQ ID NOS: 638
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 406
; LENGTH: 61
; TYPE: PRT
; ORGANISM: Conus quercinus
US-10-072-602B-406

Query Match      63.1%; Score 53; DB 14; Length 61;
Best Local Similarity 88.9%; Pred. No. 10;
Matches 8; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY      1 GCCSDPRCA 9
Db      42 GCCSDPACA 50
      ||||| |||
      ||||| |||

Search completed: March 23, 2005, 00:35:05
Job time : 28.4378 secs

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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:16:20 ; Search time 6.73267 Seconds  
(without alignments)  
171.492 Million cell updates/sec

Title: US-09-787-082a-20  
Perfect score: 84  
Sequence: 1 GCCSDPRCAWRC 12

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues

Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :

- 1: PIR79:\*
- 2: PIR1:\*
- 3: PIR3:\*
- 4: PIR4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	84	100.0	12	1 A53709	alpha-conotoxin Im
2	55	65.5	16	2 A59042	alpha-conotoxin Ep
3	53.5	63.7	176	2 H75332	ankyrin-related pr
4	50	59.5	521	2 T46250	hypothetical prote
5	47.5	56.5	245	2 S01105	hypothetical prote
6	47	56.0	494	2 H82523	glutamate synthase
7	45	53.6	120	2 G72727	probable ribosomal
8	45	53.6	157	2 JN0057	hypothetical 17K p
9	45	53.6	465	2 JCS184	glutamate synthase
10	45	53.6	471	2 G82083	glutamate synthase
11	45	53.6	472	2 G85985	glutamate synthase
12	45	53.6	472	2 AB0907	glutamate synthase
13	45	53.6	472	2 D91140	glutamate synthase
14	45	53.6	472	2 G65112	glutamate synthase
15	45	53.6	472	2 AG0432	glutamate synthase
16	45	53.6	477	2 G83017	glutamate synthase
17	45	53.6	1101	2 T16840	hypothetical prote
18	44	52.4	547	2 T30269	hypothetical prote
19	44	52.4	580	2 JH0224	site-specific meth
20	44	52.4	607	2 S49528	endoxylanase - rum
21	44	52.4	607	2 S24754	endo-1,4-beta-xyla
22	43	51.2	99	2 B97409	hypothetical prote
23	43	51.2	116	2 G75146	ssu ribosomal prot
24	43	51.2	116	2 F71186	probable ribosomal
25	43	51.2	321	2 C81746	peptide ABC transp
26	43	51.2	321	2 F71483	probable dipeptide
27	43	51.2	591	2 I48141	acroganin - guine
28	43	51.2	699	2 S27768	RNA-directed DNA p
29	43	51.2	1206	2 E96507	hypothetical prote

30	42	50.0	16	2 A59046	alpha-conotoxin MI
31	42	50.0	16	2 B54877	alpha-conotoxin Pn
32	42	50.0	16	2 A54877	alpha-conotoxin Pn
33	42	50.0	45	1 ARRAS	allergen Ra5 - com
34	42	50.0	72	2 A42325	orf 5' to pheC - p
35	42	50.0	202	2 A42926	L6 surface protein
36	42	50.0	593	1 GYHU	granulin precursor
37	41.5	49.4	1357	2 T16860	hypothetical prote
38	41	48.8	145	1 TNLJBT	trans-activating t
39	41	48.8	212	2 G81827	conserved hypotet
40	41	48.8	212	2 B81049	conserved hypotet
41	41	48.8	300	2 S40837	formate dehydrogen
42	41	48.8	300	2 B86078	formate dehydrogen
43	41	48.8	300	2 C91231	formate dehydrogen
44	41	48.8	304	2 S67148	hypothetical prote
45	41	48.8	347	2 JQ2359	wheat aluminum ind

ALIGNMENTS

RESULT 1

A53709  
alpha-conotoxin ImI - cone shell (Conus imperialis)  
N:Alternate names: alpha-CTX-ImI  
C:Species: Conus imperialis (imperial cone)  
C>Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change 09-Jul-2004  
C:Accession: A53709  
R:McIntosh, J.M.; Yoshikami, D.; Mahe, E.; Nielsen, D.B.; Rivier, J.E.; Gray, W.R.; Olive  
J. Biol. Chem. 269, 16733-16739, 1994  
A:Title: A nicotinic acetylcholine receptor ligand of unique specificity, alpha-conotoxin  
A:Reference number: A53709; MUID:94266889; PMID:8206995  
A:Accession: A53709  
A:Molecule type: protein  
A:Residues: 1-12 <NCI>  
A:Cross-references: UNIPROT:P50983  
A:Note: structure confirmed by chemical synthesis  
C:Comment: This alpha-conotoxin, as an acetylcholine receptor inhibitor, is a postsynaptic neurot  
C:Superfamily: alpha-conotoxin  
C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neurot  
F:2-8,3-12/disulfide bonds: #status experimental  
F:12/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 100.0%; Score 84; DB 1; Length 12;  
Best Local Similarity 100.0%; Pred. No. 3.5e-05;  
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCCSDPRCAWRC 12  
|||  
DB 1 GCCSDPRCAWRC 12

RESULT 2

A59042  
alpha-conotoxin Epi - cone shell (Conus episcopatus)  
C:Species: Conus episcopatus (bishop's cone)  
C>Date: 23-Jul-1999 #sequence\_revision 23-Jul-1999 #text\_change 09-Jul-2004  
C:Accession: A59042  
R:Loughnan, M.; Bond, T.; Atkins, A.; Cuevas, J.; Adams, D.J.; Broxton, N.M.; Livett, B.C  
J. Biol. Chem. 273, 15667-15674, 1998  
A:Title: Alpha-conotoxin Epi, a novel sulfated peptide from Conus episcopatus that select  
A:Reference number: A59042; MUID:98288307; PMID:9624161  
A:Accession: A59042  
A:Status: preliminary  
A:Molecule type: protein  
A:Residues: 1-16 <LOU>  
A:Cross-references: UNIPROT:P56638  
C:Superfamily: alpha-conotoxin  
C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neurot  
F:1-16/Product: alpha-conotoxin Epi #status experimental <MAT>  
F:2-8,3-16/disulfide bonds: #status experimental  
F:15/Binding site: sulfate (Tyr) (covalent) #status experimental  
F:16/Modified site: amidated carboxyl end (Cys) #status experimental

```
Query Match      65.5%; Score 55; DB 2; Length 16;
Best Local Similarity 100.0%; Pred. No. 0.28;
Matches 8; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 GCSDPRC 8
   |||||
Db 1 GCSDPRC 8

RESULT 3
H75332
A:Title: ankyrin-related protein - Deinococcus radiodurans (strain R1)
C:Species: Deinococcus radiodurans
C:Date: 03-Dec-1999 #sequence_revision 03-Dec-1999 #text_change 09-Jul-2004
C:Accession: H75332
A:White, O.; Eisen, J.A.; Heidelberg, J.P.; Hickey, E.K.; Peterson, J.D.; Dodson, R.J.;
M.; Shen, M.; Vamathevan, J.J.; Lam, P.; McDonald, L.; Utterback, T.; Zalewski, C.; Ma
S.; Smith, H.O.; Venter, J.C.; Fraser, C.M.
Science 286, 1571-1577, 1999
A:Title: Genome sequence of the radioreistant bacterium Deinococcus radiodurans R1.
A:Reference number: AY5250; MUID:20036896; PMID:10567266
A:Accession: H75332
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 1-176 <WHI>
A:Cross-references: UNIPROT:Q9RT08; GB:AE002034; GB:AE000513; NID:G6459742; PIDN:AAF1151
A:Experimental source: strain R1
C:Genetics:
A:Gene: DR1961
A:Map position: 1

Query Match      63.7%; Score 53.5; DB 2; Length 176;
Best Local Similarity 36.0%; Pred. No. 2.2;
Matches 9; Conservative 1; Mismatches 2; Indels 13; Gaps 1;

QY 1 GCC-----SDPRCAWRC 12
   |||
   : |||
Db 141 GCOWSEAPTRTPNPAAGRCWCRC 165

RESULT 4
T46250
A:Title: hypothetical protein DKFZp761A051.1 - human (fragment)
C:Species: Homo sapiens (nan)
C:Date: 04-Feb-2000 #sequence_revision 04-Feb-2000 #text_change 09-Jul-2004
C:Accession: T46250
A:Ottenwaelder, B.; Obermaier, B.; Mewes, H.W.; Gassenhuber, J.; Wiemann, S.
submitted to the Protein Sequence Database, January 2000
A:Reference number: Z23031
A:Accession: T46250
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-521 <AAA>
A:Cross-references: UNIPROT:Q9NT71; EMBL:AL137496
A:Experimental source: adult amygdala; clone DKFZp761A051
C:Genetics:
A:Note: DKFZp761A051.1

Query Match      59.5%; Score 50; DB 2; Length 521;
Best Local Similarity 77.8%; Pred. No. 13;
Matches 7; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 2 CCSDPRCAW 10
   |||||
Db 441 CCSDHRCWK 449

RESULT 5
S01105
A:Title: hypothetical protein 4 - fruit fly (Drosophila melanogaster)
C:Species: Drosophila melanogaster
C:Date: 30-Jun-1989 #sequence_revision 30-Jun-1989 #text_change 09-Jul-2004
C:Accession: G72727
```

```
C:Accession: S01105
R:Eveleth, D.D.; Marsh, J.L.
Mol. Gen. Genet. 209, 290-298, 1987
A:Title: Overlapping transcription units in Drosophila: sequence and structure of the Cs
A:Reference number: S01102; MUID:88038375; PMID:3478553
A:Accession: S01105
A:Molecule type: DNA
A:Residues: 1-245 <EVE>
A:Cross-references: UNIPROT:P18487; EMBL:X05991; NID:g7759; PIDN:CAA29408.1; PID:g7763
C:Genetics:
A:Gene: Cs
A:Cross-references: FlyBase:FBgn0002036
C:Superfamily: Drosophila melanogaster protein Cs

Query Match      56.5%; Score 47.5; DB 2; Length 245;
Best Local Similarity 72.7%; Pred. No. 17;
Matches 8; Conservative 0; Mismatches 2; Indels 1; Gaps 1;

QY 3 CSDPRCAW-RC 12
   |||||
Db 201 CFDPRCRWTRC 211

RESULT 6
H82523
A:Title: glutamate synthase, beta subunit XF2709 [imported] - Xylella fastidiosa (strain 9a5c)
C:Species: Xylella fastidiosa
C:Date: 18-Aug-2000 #sequence_revision 20-Aug-2000 #text_change 09-Jul-2004
C:Accession: H82523
A:Anonymous, The Xylella fastidiosa Consortium of the Organization for Nucleotide Sequenc
Nature 406, 151-157, 2000
A:Title: The genome sequence of the plant pathogen Xylella fastidiosa.
A:Reference number: A82515; MUID:20365717; PMID:10910347
A:Note: for a complete list of authors see reference number A59328 below
A:Accession: H82523
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 1-494 <SIM>
A:Cross-references: UNIPROT:Q9PA11; GB:AE004077; GB:AE003849; NID:g9107952; PIDN:AAF85506
A:Experimental source: strain 9a5c
R:Simpson, A.J.G.; Reinach, F.C.; Arruda, P.; Abreu, F.A.; Acencio, M.; Alvarenga, R.; AJ
Briones, M.R.S.; Bueno, M.R.P.; Camargo, A.A.; Camargo, L.E.A.; Carraro, D.M.; Carrer, H.
as-Neto, E.; Docena, C.; El-Dorri, H.; Facincani, A.P.; Ferreira, A.J.S.
submitted to GenBank, June 2000
A:Authors: Ferreira, V.C.A.; Ferro, J.A.; Fraga, J.S.; Franca, S.C.; Franco, M.C.; Frohme
J.D.; Junqueira, M.L.; Kemper, E.L.; Kitajima, J.P.; Krieger, J.E.; Kuramae, E.E.; Laigre
Chado, M.A.; Madeira, A.M.B.N.; Madeira, H.M.F.; Marino, C.L.; Marques, M.V.; Martins, E.;
A:Authors: Martins, E.M.F.; Matsukuma, A.Y.; Menck, C.F.M.; Miracca, E.C.; Miyaki, C.Y.;
F.G.; Nunes, L.R.; Oliveira, M.A.; de Oliveira, M.C.; de Oliveira, R.C.; Palmieri, D.A.;
Rodrigues, V.; Rosa, A.J. de M.; de Rosa Jr., V.E.; de Sa, R.G.; Santelli, R.V.; Sawasak
A:Authors: da Silva, A.C.R.; da Silva, F.R.; da Silva, A.M.; Silva Jr., W.A.; da Silveir
M.; Teshako, M.H.; Vallada, H.; Van Sluys, M.A.; Verjovski-Almeida, S.; Vettore, A.L.; Z
A:Reference number: A59328
A:Contents: annotation
C:Genetics:
A:Gene: XF2709
C:Superfamily: glutamate synthase small chain

Query Match      56.0%; Score 47; DB 2; Length 494;
Best Local Similarity 50.0%; Pred. No. 32;
Matches 5; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

QY 3 CSDPRCAWRC 12
   |||
Db 52 CGNFCYSWKC 61

RESULT 7
G72727
A:Title: probable ribosomal protein S17 APE0360 - Aeropyrum pernix (strain K1)
C:Species: Aeropyrum pernix
C:Date: 20-Aug-1999 #sequence_revision 20-Aug-1999 #text_change 09-Jul-2004
C:Accession: G72727
```

R;Kawarabayasi, Y.; Hino, Y.; Horikawa, H.; Yamazaki, S.; Haikawa, Y.; Jin-no, K.; Takahawa, H.; Takamiya, M.; Masuda, S.; Funahashi, T.; Tanaka, T.; Kudoh, Y.; Yamazaki, J.; & DNA Res. 6, 83-101, 1999  
 A:Title: Complete genome sequence of an aerobic hyper-thermophilic Crenarchaeon, Aeropyrum A:Reference number: A72450, MUID:99310339, PMID:10382966  
 A:Accession: G72727  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 1-120 <RAW>  
 A:Cross-references: UNIPROT:Q9YF81; DDBJ:AF000059; NID:G5103911; PIDN:BAA79315.1; PID:gs A:Experimental source: strain K1  
 C:Genetics:  
 A:Gene: APE0360  
 C:Superfamily: Escherichia coli ribosomal protein S17

Query Match 53.6%; Score 45; DB 2; Length 120;  
 Best Local Similarity 75.0%; Pred. No. 23;  
 Matches 6; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 3 CSDPRCAW 10  
 |||||  
 DB 28 CSDPNCPW 35  
 |||||

RESULT 8  
 JN0057  
 Hypothetical 17K protein (pIlt 5' region) - Pseudomonas aeruginosa  
 N:Alternate names: Hypothetical protein 1  
 C:Species: Pseudomonas aeruginosa  
 C:Date: 23-Nov-1991 #sequence\_revision 23-Nov-1991 #text\_change 09-Jul-2004  
 C:Accession: JN0057  
 R:Whitchurch, C.B.; Hobbs, M.; Livingston, S.P.; Krishnapillai, V.; Mattick, J.S.  
 Gene 101, 33-44, 1991  
 A:Title: Characterisation of a Pseudomonas aeruginosa twitching motility gene and evidence A:Reference number: JN0055; MUID:91285432; PMID:1676385  
 A:Accession: JN0057  
 A:Status: translation not shown  
 A:Molecule type: DNA  
 A:Residues: 1-157 <WHI>  
 A:Cross-references: UNIPROT:Q8VVL9; GB:M55524; NID:G151483; PIDN:AAA25960.1; PID:G151487 C:Superfamily: Pseudomonas aeruginosa hypothetical 17K protein (pIlt 5' region)

Query Match 53.6%; Score 45; DB 2; Length 157;  
 Best Local Similarity 40.9%; Pred. No. 27;  
 Matches 9; Conservative 1; Mismatches 2; Indels 10; Gaps 1;

QY 1 GCCSDPRCA-----WRC 12  
 |||||  
 DB 102 GRCDRRCAIFNRSTCTHWKC 123  
 |||||

RESULT 9  
 JCS184  
 Glutamate synthase (GOGAT) (EC 1.4.1.-) small chain - Thiobacillus ferrooxidans  
 C:Species: Thiobacillus ferrooxidans  
 C:Date: 16-Feb-1997 #sequence\_revision 27-Feb-1997 #text\_change 09-Jul-2004  
 C:Accession: JCS184  
 R:Deane, S.M.; Rawlings, D.E.  
 Gene 177, 261-263, 1996  
 A:Title: Cloning and sequencing of the gene for the Thiobacillus ferrooxidans ATCC33020 A:Reference number: JCS184; MUID:97080532; PMID:8921877  
 A:Accession: JCS184  
 A:Status: preliminary; nucleic acid sequence not shown  
 A:Molecule type: DNA  
 A:Residues: 1-465 <DEA>  
 A:Cross-references: UNIPROT:Q56267; GB:U36427; NID:G1033069; PIDN:AAA79783.1; PID:G10330 C:Experimental source: strain ATCC33020  
 C:Genetics:  
 A:Gene: gltD  
 C:Superfamily: glutamate synthase small chain  
 C:Keywords: iron-sulfur protein; metalloprotein; oxidoreductase  
 F:151-156,291-296/Region: glycine-rich  
 F:427-437/Region: FAD-binding #status predicted

F:45,48,53,57,92,96,102,106/Binding site: iron-sulfur clusters (Cys) (covalent) #status I  
 Query Match 53.6%; Score 45; DB 2; Length 465;  
 Best Local Similarity 50.0%; Pred. No. 56;  
 Matches 5; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 3 CSDPRCAWRC 12  
 |||||  
 DB 48 CGNPYCEWKC 57  
 |||||

RESULT 10  
 GB2083  
 Glutamate synthase, small subunit VC2377 [imported] - Vibrio cholerae (strain N16961 sero C:Species: Vibrio cholerae  
 C:Date: 18-Aug-2000 #sequence\_revision 20-Aug-2000 #text\_change 09-Jul-2004  
 C:Accession: GB2083  
 R:Heidelber, J.F.; Eisen, J.A.; Nelson, W.C.; Clayton, R.A.; Gwinn, M.L.; Dodson, R.J.; Chardson, D.; Ermolaeva, M.D.; Vamathevan, J.; Bass, S.; Qin, H.; Dragoi, I.; Sellers, P. I, R.R.; Mekalanos, J.J.; Venter, J.C.; Fraser, C.M.  
 Nature 406, 477-483, 2000  
 A:Title: DNA Sequence of both chromosomes of the cholera pathogen Vibrio cholerae.  
 A:Reference number: A82035; MUID:20406833; PMID:10952301  
 A:Accession: GB2083  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 1-471 <HEI>  
 A:Cross-references: UNIPROT:Q9KJ0; GB:AE004308; GB:AE003852; NID:g9656946; PIDN:AAF9552 A:Experimental source: serogroup O1; strain N16961; biotype El Tor  
 C:Genetics:  
 A:Gene: VC2377  
 A:Map position: 1  
 C:Superfamily: glutamate synthase small chain

Query Match 53.6%; Score 45; DB 2; Length 471;  
 Best Local Similarity 50.0%; Pred. No. 56;  
 Matches 5; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 3 CSDPRCAWRC 12  
 |||||  
 DB 51 CGNPYCEWKC 60  
 |||||

RESULT 11  
 GB5985  
 Glutamate synthase, small subunit [imported] - Escherichia coli (strain O157:H7, substra C:Species: Escherichia coli  
 C:Date: 16-Feb-2001 #sequence\_revision 16-Feb-2001 #text\_change 09-Jul-2004  
 C:Accession: GB5985  
 R:Perna, N.T.; Plunkett III, G.; Burland, V.; Mau, B.; Glaesner, J.D.; Rose, D.J.; Mayhew, iller, L.; Grotbeck, E.J.; Davis, N.W.; Lim, A.; Dimalanta, E.; Potamousis, K.; Apodaca, Nature 409, 529-533, 2001  
 A:Title: Genome sequence of enterohemorrhagic Escherichia coli O157:H7.  
 A:Reference number: A85480; MUID:21074935; PMID:11206551  
 A:Accession: GB5985  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 1-472 <STO>  
 A:Cross-references: UNIPROT:Q8X9H5; GB:AE005174; NID:G12517834; PIDN:AAG58347.1; GSPDB:G C:Experimental source: strain O157:H7, substrain EDL933  
 C:Genetics:  
 A:Gene: gltD  
 C:Superfamily: glutamate synthase small chain

Query Match 53.6%; Score 45; DB 2; Length 472;  
 Best Local Similarity 50.0%; Pred. No. 56;  
 Matches 5; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 3 CSDPRCAWRC 12  
 |||||  
 DB 50 CGNPYCEWKC 59  
 |||||

## RESULT 12

AB0907  
 C:Glutamate synthase (NADPH) small chain [imported] - Salmonella enterica subsp. enterica  
 C:Species: Salmonella enterica subsp. enterica serovar Typhi  
 A:Note: this species has also been called Salmonella typhi  
 C:Date: 09-Nov-2001 #sequence\_revision 09-Nov-2001 #text\_change 16-Aug-2004  
 C:Accession: AB0907  
 R:Parkhill, J.; Dougan, G.; James, K.D.; Thomson, N.R.; Pickard, D.; Wain, J.; Churcher, T.; Connor, P.; Cronin, A.; Davis, P.; Davies, R.M.; Dowd, L.; White, N.; Farrar, S.; Moule, S.; O'Gaora, P.  
 Nature 413, 848-852, 2001  
 A:Authors: Parkhill, J.; Dougan, G.; James, K.D.; Thomson, N.R.; Pickard, D.; Wain, J.; Churcher, T.; Connor, P.; Cronin, A.; Davis, P.; Davies, R.M.; Dowd, L.; White, N.; Farrar, S.; Moule, S.; O'Gaora, P.  
 A:Title: Complete genome sequence of a multiple drug resistant Salmonella enterica serovar Typhi  
 A:Reference number: AB0502; MUID:21534947; PMID:11677608  
 A:Accession: AB0907  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 1-472 <PAR>  
 A:Cross-references: GB:AL513382; PIDN:CAD07848.1; PID:g16504396; GSPDB:GN00176  
 C:Genetics:  
 A:Gene: STY3511  
 C:Superfamily: Glutamate synthase, small subunit

Query Match 53.6%; Score 45; DB 2; Length 472;  
 Best Local Similarity 50.0%; Pred. No. 56;  
 Matches 5; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 3 CSDPRCAWRC 12  
 | : | | : |  
 DB 50 CGNPYCEWKC 59

## RESULT 13

D91140  
 C:Glutamate synthase small subunit [imported] - Escherichia coli (strain O157:H7, substrain  
 C:Species: Escherichia coli  
 C:Date: 18-Jul-2001 #sequence\_revision 18-Jul-2001 #text\_change 16-Aug-2004  
 C:Accession: D91140  
 R:Hayashi, T.; Makino, K.; Ohnishi, M.; Kurokawa, K.; Ishii, K.; Yokoyama, K.; Han, C.G.; Gaiyawara, N.; Yasunaga, T.; Kuhara, S.; Shiba, T.; Hattori, M.; Shinagawa, H.  
 DNA Res. 8, 11-22, 2001  
 A:Title: Complete genome sequence of enterohemorrhagic Escherichia coli O157:H7 and genomic  
 A:Reference number: A95629; MUID:21156231; PMID:11250796  
 A:Accession: D91140  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 1-472 <HAY>  
 A:Cross-references: UNIPROT:Q8X9H5; GB:BA000007; PIDN:BA037515.1; PID:g13363565; GSPDB:G  
 A:Experimental source: strain O157:H7, substrain RIMD 0509952  
 C:Genetics:  
 A:Gene: Ecs4092  
 C:Superfamily: Glutamate synthase, small subunit

Query Match 53.6%; Score 45; DB 2; Length 472;  
 Best Local Similarity 50.0%; Pred. No. 56;  
 Matches 5; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 3 CSDPRCAWRC 12  
 | : | | : |  
 DB 50 CGNPYCEWKC 59

## RESULT 14

G65112  
 C:Glutamate synthase (NADPH) (EC 1.4.1.13) small chain - Escherichia coli (strain K-12)  
 C:Species: Escherichia coli  
 C:Date: 12-Sep-1997 #sequence\_revision 17-Sep-1997 #text\_change 16-Aug-2004  
 C:Accession: G65112; B29617  
 R:Blattner, F.R.; Plunkett III, G.; Bloch, C.A.; Perna, N.T.; Burland, V.; Riley, M.; Cohen, A.; Rose, D.J.; Mau, B.; Shao, Y.  
 Science 277, 1453-1462, 1997  
 A:Title: The complete genome sequence of Escherichia coli K-12.  
 A:Reference number: A64720; MUID:97426617; PMID:9278503

A:Accession: G65112  
 A:Status: preliminary; nucleic acid sequence not shown; translation not shown  
 A:Molecule type: DNA  
 A:Residues: 1-472 <BLAT>  
 A:Cross-references: UNIPROT:P09832; GB:AE000400; GB:U00096; NID:92367203; PIDN:AACT6245.1  
 A:Experimental source: strain K-12, substrain MGL655  
 R:Oliver, G.; Gossel, G.; Sanchez-Pescador, R.; Lozoya, E.; Ku, L.M.; Flores, N.; Becerra, Gene 60, 1-11, 1987  
 A:Title: Determination of the nucleotide sequence for the glutamate synthase structural  
 A:Reference number: A91585; MUID:88152492; PMID:3326786  
 A:Contents: K12  
 A:Accession: B29617  
 A:Status: not compared with conceptual translation  
 A:Molecule type: DNA  
 A:Residues: 1-37, 'ARP', 41, 'RLTAACRAA', 52-122, 'K', 124-173, 'C', 175-256, 'CTQRCSSSPTPNS', 2;  
 A:Cross-references: GB:M18747; NID:9146207; PIDN:AAA23305.1; PID:g146209  
 C:Genetics:  
 A:Gene: gltD  
 C:Superfamily: Glutamate synthase, small subunit  
 C:Keywords: glutamate biosynthesis; NADP; oxidoreductase

Query Match 53.6%; Score 45; DB 2; Length 472;  
 Best Local Similarity 50.0%; Pred. No. 56;  
 Matches 5; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 3 CSDPRCAWRC 12  
 | : | | : |  
 DB 50 CGNPYCEWKC 59

## RESULT 15

AG0432  
 C:Glutamate synthase (NADPH) (EC 1.4.1.13) small chain [imported] - Yersinia pestis (strain  
 C:Species: Yersinia pestis  
 C:Date: 02-Nov-2001 #sequence\_revision 02-Nov-2001 #text\_change 16-Aug-2004  
 C:Accession: AG0432  
 R:Parkhill, J.; Wren, B.W.; Thomson, N.R.; Titball, R.W.; Holden, M.T.G.; Prentice, M.B.; deno-Tarraga, A.M.; Chillingworth, T.; Cronin, A.; Davies, R.M.; Davis, P.; Dougan, G.; I  
 11, M.; Rutherford, K.; Simmonds, M.; Skelton, J.; Stevens, K.; Whitehead, S.; Barrell, H.  
 Nature 413, 523-527, 2001  
 A:Title: Genome sequence of Yersinia pestis, the causative agent of plague.  
 A:Reference number: AB0001; MUID:21470413; PMID:11586360  
 A:Accession: AG0432  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 1-472 <KUR>  
 A:Cross-references: UNIPROT:Q8ZB66; GB:AL590842; PIDN:CAC92787.1; PID:g15981480; GSPDB:G  
 C:Genetics:  
 A:Gene: gltD  
 C:Superfamily: Glutamate synthase, small subunit  
 C:Keywords: oxidoreductase

Query Match 53.6%; Score 45; DB 2; Length 472;  
 Best Local Similarity 50.0%; Pred. No. 56;  
 Matches 5; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 3 CSDPRCAWRC 12  
 | : | | : |  
 DB 50 CGNPYCEWKC 59

Search completed: March 22, 2005, 22:54:22  
 Job time : 7.73267 secs



GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:45:36 ; Search time 32.0396 Seconds  
(without alignments)  
191.792 Million cell updates/sec

Title: US-09-787-082A-20  
Perfect score: 84  
Sequence: 1 GCCSDPRCAWRC 12

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : Uniprot\_03.\*  
1: uniprot\_sprot.\*  
2: uniprot\_trembl.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match %	Length	DB	ID	Description
1	84	100.0	17	1	CXAI_CONIM	P50983 conus imper
2	64	76.2	17	1	CXAI_CONIM	Q816r5 conus imper
3	55	65.5	16	1	CXAI_CONEP	P56638 conus episc
4	53.5	63.7	176	2	Q9RT08	Q9rt08 deinococcus
5	53	63.1	66	2	Q6PPB2	Q6ppb2 conus querc
6	50	59.5	488	2	Q9HAU7	Q9hau7 homo sapien
7	50	59.5	521	2	Q9NT71	Q9nt71 homo sapien
8	50	59.5	523	2	Q9HAT2	Q9hat2 homo sapien
9	49	58.3	69	1	CXAI_CONTE	Q9x2k6 conus texti
10	48.5	57.7	324	2	Q7XUD4	Q7xud4 oryza sativ
11	47	56.0	185	2	Q67RJ6	Q67rj6 symbiobacte
12	47	56.0	493	2	Q8PEE9	Q8pee9 xanthomonas
13	47	56.0	493	2	Q8PXD1	Q8pxd1 xanthomonas
14	47	56.0	494	2	Q879X7	Q879x7 xylella fas
15	47	56.0	494	2	Q9PA11	Q9pal1 xylella fas
16	47	56.0	1035	2	Q6NBZ7	Q6nbz7 rhodopseudo
17	46	54.8	40	1	CXAC_CONGE	Q86tb2 conus geogr
18	46	54.8	225	2	Q7XL76	Q7xl76 oryza sativ
19	46	54.8	362	2	Q92257	Q92257 orpinomyces
20	46	54.8	500	1	LR11_HUMAN	Q86vza homo sapien
21	45	53.6	120	1	RS17_ASRPE	Q9yfe8 aeropyrum p
22	45	53.6	151	2	Q93NR1	Q93nr1 uncultured
23	45	53.6	157	2	Q8VVL9	Q8vvl9 pseudomonas
24	45	53.6	159	2	Q93NR5	Q93nr5 uncultured
25	45	53.6	163	2	Q67BY6	Q67by6 uncultured
26	45	53.6	184	2	Q8RQT9	Q8rqt9 uncultured
27	45	53.6	186	2	Q93NV7	Q93nv7 desulfomicro
28	45	53.6	188	2	Q93NR7	Q93nr7 uncultured
29	45	53.6	188	2	Q93NS3	Q93ns3 uncultured
30	45	53.6	192	2	Q93NS7	Q93ns7 uncultured
31	45	53.6	192	2	Q93NS9	Q93ns9 uncultured

32	45	53.6	192	2	Q93NT1	Q93nt1 uncultured
33	45	53.6	193	2	Q93NS5	Q93ns5 uncultured
34	45	53.6	197	2	Q93NR9	Q93nr9 uncultured
35	45	53.6	200	2	Q93NS1	Q93ns1 uncultured
36	45	53.6	212	2	Q93NR3	Q93nr3 uncultured
37	45	53.6	246	2	Q93NT3	Q93nt3 uncultured
38	45	53.6	277	2	Q9ES33	Q9es33 rattus norv
39	45	53.6	283	2	Q6VU51	Q6vu51 uncultured
40	45	53.6	294	2	Q8CC41	Q8cc41 mus musculu
41	45	53.6	297	1	TRUA_DESVH	Q72dl8 desulfovibr
42	45	53.6	349	1	DKK3_MOUSE	Q8qun9 mus musculu
43	45	53.6	361	2	O8VRP2	Q8vlp2 desulfofobulb
44	45	53.6	366	2	O8VL63	O8vl63 desulfomicro
45	45	53.6	375	2	O8RIS5	O8ris5 desulfomicro

## ALIGNMENTS

RESULT 1  
CXAI\_CONIM STANDARD; PRT; 17 AA.

AC P50983; Q816R4;  
DT 01-OCT-1996 (Rel. 34, Created)  
DT 29-MAR-2004 (Rel. 43, Last sequence update)  
DT 25-OCT-2004 (Rel. 45, Last annotation update)  
DE Alpha-conotoxin Imi precursor (Alpha-CTX Imi) (Fragment).  
OS Conus imperialis (Imperial cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_Taxid=35631;  
RN [1]  
RP SEQUENCE FROM N.A., AND SYNTHESIS OF 5-16.  
RC TISSUE=Venom duct;  
RX MEDLINE=22401773; PubMed=12384509; DOI=10.1074/jbc.M204565200;  
RA Ellison M.A., McIntosh J.M., Olivera B.M.;  
RT "alpha-Conotoxins Imi and Imli: similar alpha 7 nicotinic receptor  
antagonists act at different sites.";  
RL J. Biol. Chem. 278:757-764(2003).  
RN [2]  
RP SEQUENCE OF 5-16, AND SYNTHESIS OF 5-16.  
RC TISSUE=Venom;  
RX MEDLINE=94266889; PubMed=8206995;  
RA McIntosh J.M., Yoshikami D., Mahe E., Nielsen D.B., Rivier J.E.,  
Gray W.R., Olivera B.M.;  
RT "A nicotinic acetylcholine receptor ligand of unique specificity,  
alpha-conotoxin Imi.";  
RL J. Biol. Chem. 269:16733-16739(1994).  
RN [3]  
RP CHARACTERIZATION.  
RX MEDLINE=95379776; PubMed=7651351;  
RA Johnson D.S., Martinez J., Elgoyhen A.B., Heinemann S.F.,  
McIntosh J.M.;  
RT "Alpha-conotoxin Imi exhibits subtype-specific nicotinic acetylcholine  
receptor blockade: preferential inhibition of homomeric alpha 7 and  
alpha 9 receptors.";  
RL Mol. Pharmacol. 48:194-199(1995).  
RN [4]  
RP STRUCTURE BY NMR OF 5-16.  
RX MEDLINE=9912205; PubMed=10194298; DOI=10.1021/bi9826254;  
RA Rogers J.P., Lugmuhl P., Shen G.S., McCabe R.T., Stevens R.C.,  
Wemmer D.E.;  
RT "NMR solution structure of alpha-conotoxin Imi and comparison to other  
conotoxins specific for neuronal nicotinic acetylcholine receptors.";  
RL Biochemistry 38:3874-3882(1999).  
RN [5]  
RP STRUCTURE BY NMR OF 5-16.  
RX MEDLINE=99280313; PubMed=10350614; DOI=10.1016/S0167-4838(99)00065-5;  
RA Gouda H., Hiroto S.;  
RT "Solution structure of alpha-conotoxin Imi determined by two-  
dimensional NMR spectroscopy.";  
RL Biochim. Biophys. Acta 1431:384-394(1999).

[6]  
 RP STRUCTURE BY NMR OF 5-16.  
 RX MEDLINE=99158061; PubMed=10050774; DOI=10.1016/S0014-5793(99)00069-1;  
 RA Maslennikov I.V., Sherkarev Z.O., Zhmak M.N., Ivanov V.T.,  
 RA Methresnel C., Tsetlin V.I., Arseniev A.S.;  
 RT "NMR spatial structure of alpha-conotoxin ImI reveals a common  
 RT scaffold in snail and snake toxins recognizing neuronal nicotinic  
 RT acetylcholine receptors.";  
 RL FEBS Lett. 444:275-280(1999).  
 RP STRUCTURE BY NMR OF 5-16.  
 RX MEDLINE=99358772; PubMed=10431825; DOI=10.1016/S0014-5793(99)00831-5;  
 RA Lamthanh H., Jegou-Matheron C., Servent D., Menez A., Lancelin J.-M.;  
 RT "Minimal conformation of the alpha-conotoxin ImI for the alpha7  
 RT neuronal nicotinic acetylcholine receptor recognition: correlated CD,  
 RT NMR and binding studies.";  
 RL FEBS Lett. 454:293-298(1999).  
 RP STRUCTURE BY NMR OF 5-16.  
 RX MEDLINE=99324017; PubMed=10395477; DOI=10.1021/jm990114p;  
 RA Gehrmann J., Daly N.E., Alewood P.F., Craik D.J.;  
 RT "Solution structure of alpha-conotoxin ImI by 1H nuclear magnetic  
 RT resonance.";  
 RL J. Med. Chem. 42:2364-2372(1999).  
 RP MUTAGENESIS OF ASP-9; ARG-11 AND ARG-15, AND STRUCTURE BY NMR OF 5-16  
 RP OF THESE THREE MUTANTS.  
 RX MEDLINE=20574023; PubMed=1124036; DOI=10.1006/jmbi.2000.4247;  
 RA Rogers J.P., Luginbuhl P., Pemberton K., Hartly P., Wenner D.E.,  
 RA Stevens R.C.;  
 RT "Structure-activity relationships in a peptidic alpha7 nicotinic  
 RT acetylcholine receptor antagonist.";  
 RL J. Mol. Biol. 304:911-926(2000).  
 CC -!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they  
 CC bind to the nicotinic acetylcholine receptors (nAChR) and thus  
 CC inhibit them. It is highly active against the neuromuscular  
 CC receptor in frog but not in mice. In contrast, it induces seizures  
 CC when injected centrally in mice and rats. It targets neuronal  
 CC nAChRs in mammals. It blocks homomeric alpha-7 nicotinic receptors  
 CC with the highest apparent affinity and homomeric alpha-9 receptors  
 CC with 8-fold lower affinity. It inhibits alpha-bungarotoxin  
 CC binding. It has no effect on receptors composed of alpha-2/beta-2,  
 CC alpha-3/beta-2, alpha-4/beta-2, alpha-2/beta-4, alpha-3/beta-4, or  
 CC alpha-4/beta-4 subunit combinations. It acts voltage-  
 CC independently.  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type  
 CC family.  
 CC  
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 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC  
 CC EMBL; AV159318; AAN78128.1; -.  
 DR PIR; A53709; A53709.  
 DR PDB; 1CNL; NMR; A=1-12.  
 DR PDB; 1E74; NMR; A=1-12.  
 DR PDB; 1E75; NMR; A=1-12.  
 DR PDB; 1E76; NMR; A=1-12.  
 DR PDB; 1G2G; NMR; A=1-12.  
 DR PDB; 1IM1; NMR; A=1-12.  
 DR PDB; 1IM1; NMR; A=1-12.  
 DR PDB; 1IM1; NMR; A=1-12.  
 KW 3D-structure; Acetylcholine receptor inhibitor; Amidation;  
 KW Direct protein sequencing; Neurotoxin; Postsynaptic neurotoxin;  
 KW Signal; Toxin.  
 FT NON\_TER 1 1  
 FT SIGNAL <1 4  
 FT CHAIN 5 16 Alpha-conotoxin ImI.

FT DISULFID 6 12  
 FT DISULFID 7 16  
 FT MOD\_RES 16 16  
 FT Cysteine amide (G-17 provides amide group).  
 FT MUTAGEN 9 9  
 FT MUTAGEN 11 11 D->L: Reduction of toxicity.  
 FT MUTAGEN 15 15 R->L: Reduction of toxicity.  
 FT HELIX 6 8 R->E: NO loss of activity.  
 FT HELIX 10 12  
 FT TURN 14 16  
 SQ SEQUENCE 17 AA; 1938 MW; 9590D9CEA50279CF CRC64;  
 Query Match 100.0%; Score 84; DB 1; Length 17;  
 Best Local Similarity 100.0%; Pred. No. 2.6e-05;  
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 GCCSDPRCAWRC 12  
 DB 5 GCCSDPRCAWRC 16  
 RESULT 2  
 CXA2 CONIM STANDARD; PRT; 17 AA.  
 ID CXA2 CONIM  
 AC Q816R5;  
 DT 29-MAR-2004 (Rel. 43, Created)  
 DT 29-MAR-2004 (Rel. 43, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Alpha-conotoxin ImI precursor (Alpha-CTX ImI) (Fragment).  
 OS Conus imperialis (Imperial cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Neogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=35631;  
 RN [1]  
 RP SEQUENCE FROM N.A., AND SYNTHESIS OF 5-16.  
 RC TISSUE=Venom duct;  
 RX MEDLINE=22401773; PubMed=12384509; DOI=10.1074/jbc.M204565200;  
 RA Ellison M., McIntosh J.M., Olivera B.M.;  
 RT "Alpha-conotoxins ImI and ImII. Similar alpha 7 nicotinic receptor  
 RT antagonists act at different sites.";  
 RL J. Biol. Chem. 278:757-764(2003).  
 CC -!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they  
 CC bind to the nicotinic acetylcholine receptors (nAChR) and thus  
 CC inhibit them. It blocks homomeric alpha-7 nAChRs in mammals.  
 CC unlike alpha-conotoxin ImI, it is unable to block the binding of  
 CC alpha-bungarotoxin to alpha-7 nAChRs. It acts voltage-  
 CC independently.  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type  
 CC family.  
 CC  
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 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC  
 CC EMBL; AV159317; AAN78127.1; -.  
 DR Acetylcholine receptor inhibitor; Amidation; Neurotoxin;  
 KW Postsynaptic neurotoxin; Signal; Toxin.  
 FT NON\_TER 1 1  
 FT SIGNAL <1 4  
 FT CHAIN 5 16 Alpha-conotoxin ImII.  
 FT DISULFID 6 12  
 FT DISULFID 7 16  
 FT MOD\_RES 16 16  
 FT Cysteine amide (G-17 provides amide group).  
 FT SEQUENCE 17 AA; 2096 MW; CF90D9CEBB4C79CC CRC64;

```

Query Match      76.2%; Score 64; DB 1; Length 17;
Best Local Similarity 81.8%; Pred. NO. 0.018;
Matches 9; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 2 CCSDPRCAWRC 12
DB 6 CCSDRCRCWRC 16

RESULT 3
CXAL_CONEP STANDARD; PRT; 16 AA.
AC P56638;
DT 15-DEC-1998 (Rel. 37, Created)
DT 15-DEC-1998 (Rel. 37, Last sequence update)
DT 25-OCT-2004 (Rel. 45, Last annotation update)
DE Alpha-conotoxin Epi.
OS Conus episcopatus (Bishop's cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=88764;
RN [1]
RP X-RAY CRYSTALLOGRAPHY (1.1 ANGSTROMS).
RX MEDLINE=98376423; PubMed=9708977; DOI=10.1021/bi9806549;
RA Hu S.H., Loughnan M., Miller R., Weeks C.M., Blessing R.H.,
RA Alewood P.F., Lewis R.J., Martin J.L.;
RT "The 1.1-A resolution crystal structure of [Tyr15]Epi, a novel alpha-
RT conotoxin from Conus episcopatus, solved by direct methods.";
RL Biochemistry 37:11425-11433(1998).
CC -1- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they
CC bind to the nicotinic acetylcholine receptors (nAChR) and thus
CC inhibit them. This peptide blocks mammalian nicotinic
CC acetylcholine receptors composed of alpha-3/beta-2 and alpha-
CC 3/beta-4 subunits.
CC -1- SUBCELLULAR LOCATION: Secreted.
CC -1- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -1- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type
CC family.
DR PIR; A59042; A59042.
DR PDB; 1A0M; X-ray; A/b=1-16.
KW 3D-structure; Acetylcholine receptor inhibitor; Amidation; Neurotoxin;
KW Postsynaptic neurotoxin; Sulfation; Toxin.
FT DISULFID 2 8
FT DISULFID 3 16
FT MOD_RES 15 15 Sulfotyrosine.
FT MOD_RES 16 16 Cysteine amide.
FT HELIX 2 4
FT HELIX 6 11
FT TURN 13 16
SQ SEQUENCE 16 AA; 1792 MW; C63385F376C99B4C CRC64;

Query Match      65.5%; Score 55; DB 1; Length 16;
Best Local Similarity 100.0%; Pred. NO. 0.31;
Matches 8; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 GCCSDPRC 8
DB 1 GCCSDPRC 8

RESULT 4
Q9RT08 PRELIMINARY; PRT; 176 AA.
AC Q9RT08;
DT 01-MAY-2000 (TrEMBLrel. 13, Created)
DT 01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT 01-MAR-2004 (TrEMBLrel. 26, Last annotation update)
DE Ankyrin-related protein.
GN OrderedLocNames-DR1961;
OS Deinococcus radiodurans.
OC Bacteria; Deinococcus-Thermus; Deinococci; Deinococcales;
OC Deinococcaceae; Deinococcus.

Query Match      76.2%; Score 64; DB 1; Length 17;
Best Local Similarity 81.8%; Pred. NO. 0.018;
Matches 9; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 2 CCSDPRCAWRC 12
DB 6 CCSDRCRCWRC 16

RESULT 3
CXAL_CONEP STANDARD; PRT; 16 AA.
AC P56638;
DT 15-DEC-1998 (Rel. 37, Created)
DT 15-DEC-1998 (Rel. 37, Last sequence update)
DT 25-OCT-2004 (Rel. 45, Last annotation update)
DE Alpha-conotoxin Epi.
OS Conus episcopatus (Bishop's cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=88764;
RN [1]
RP X-RAY CRYSTALLOGRAPHY (1.1 ANGSTROMS).
RX MEDLINE=98376423; PubMed=9708977; DOI=10.1021/bi9806549;
RA Hu S.H., Loughnan M., Miller R., Weeks C.M., Blessing R.H.,
RA Alewood P.F., Lewis R.J., Martin J.L.;
RT "The 1.1-A resolution crystal structure of [Tyr15]Epi, a novel alpha-
RT conotoxin from Conus episcopatus, solved by direct methods.";
RL Biochemistry 37:11425-11433(1998).
CC -1- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they
CC bind to the nicotinic acetylcholine receptors (nAChR) and thus
CC inhibit them. This peptide blocks mammalian nicotinic
CC acetylcholine receptors composed of alpha-3/beta-2 and alpha-
CC 3/beta-4 subunits.
CC -1- SUBCELLULAR LOCATION: Secreted.
CC -1- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -1- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type
CC family.
DR PIR; A59042; A59042.
DR PDB; 1A0M; X-ray; A/b=1-16.
KW 3D-structure; Acetylcholine receptor inhibitor; Amidation; Neurotoxin;
KW Postsynaptic neurotoxin; Sulfation; Toxin.
FT DISULFID 2 8
FT DISULFID 3 16
FT MOD_RES 15 15 Sulfotyrosine.
FT MOD_RES 16 16 Cysteine amide.
FT HELIX 2 4
FT HELIX 6 11
FT TURN 13 16
SQ SEQUENCE 16 AA; 1792 MW; C63385F376C99B4C CRC64;

Query Match      65.5%; Score 55; DB 1; Length 16;
Best Local Similarity 100.0%; Pred. NO. 0.31;
Matches 8; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 GCCSDPRC 8
DB 1 GCCSDPRC 8

RESULT 4
Q9RT08 PRELIMINARY; PRT; 176 AA.
AC Q9RT08;
DT 01-MAY-2000 (TrEMBLrel. 13, Created)
DT 01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT 01-MAR-2004 (TrEMBLrel. 26, Last annotation update)
DE Ankyrin-related protein.
GN OrderedLocNames-DR1961;
OS Deinococcus radiodurans.
OC Bacteria; Deinococcus-Thermus; Deinococci; Deinococcales;
OC Deinococcaceae; Deinococcus.

Query Match      63.7%; Score 53.5; DB 2; Length 176;
Best Local Similarity 36.0%; Pred. NO. 4.3;
Matches 9; Conservative 1; Mismatches 2; Indels 13; Gaps 1;

OY 1 GCC-----SDPRCAWRC 12
DB 141 GCCWSRAPTRTPRNPAGRCWCRC 165

RESULT 5
Q6PPB2 PRELIMINARY; PRT; 66 AA.
AC Q6PPB2;
DT 05-JUL-2004 (TrEMBLrel. 27, Created)
DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)
DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)
DE Alpha conotoxin QC1.4.
OS Conus quercinus (Oak cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=101313;
RN [1]
RP SEQUENCE FROM N.A.
RA Han Y.H., Wang Q., Jiang H., Chen J.S., Qi C.W.;
RA Submitted (APR-2004) to the EMBL/GenBank/DDJB databases.
DR EMBL; AY588973; AAS99933.1; -.
DR HSSP; P56638; 1A0M.
DR InterPro; IPR009958; Toxin_8.
DR Pfam; PF07365; Toxin_8; 1.
SQ SEQUENCE 66 AA; 6905 MW; C49786F54DFF8652 CRC64;

Query Match      63.1%; Score 53; DB 2; Length 66;
Best Local Similarity 88.9%; Pred. NO. 2.1;
Matches 8; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 GCCSDPRCA 9
DB 47 GCCSDPACA 55

RESULT 6
Q9HAU7 PRELIMINARY; PRT; 488 AA.
ID Q9HAU7
AC Q9HAU7;
DT 01-MAR-2001 (TrEMBLrel. 16, Created)

```

DT 01-MAR-2001 (TREMELrel. 16, Last sequence update)  
 DE Sialic acid-specific 9-O-acetyltransferase I.  
 OS Homo sapiens (Human)  
 OC Mammalia; Eutheria; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Testis;  
 RA Zhu H., Li J.M., Sha J.H.;  
 RL Submitted (AUG-2000) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF300796; FAG15386.1; -  
 DR InterPro; IPR005181; DUF303.  
 DR Pfam; PF03629; DUF303; 1.  
 SQ SEQUENCE 488 AA; 54572 MW; DB030C82DA44916 CRC64;

Query Match 59.5%; Score 50; DB 2; Length 488;  
 Best Local Similarity 77.8%; Pred. No. 34;  
 Matches 7; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 2 CCSDPRCAW 10  
 |||||  
 DB 408 CCSDHRCWK 416

## RESULT 7

Q9NT71 PRELIMINARY; PRT; 521 AA.  
 ID Q9NT71  
 DT 01-OCT-2000 (TREMELrel. 15, Created)  
 DT 01-OCT-2000 (TREMELrel. 15, Last sequence update)  
 DT 01-JUN-2003 (TREMELrel. 24, Last annotation update)  
 DE Hypothetical protein DKFZp761A051 (Fragment).  
 GN Name=DKFZp761A051;  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Amygdala;  
 RA Ottenwaelder B., Obermaier B., Mewes H.W., Gassenhuber J., Wiemann S.;  
 RL Submitted (JAN-2000) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AL137496; CAB70771.1; -  
 DR FIr; T46250; T46250.  
 DR InterPro; IPR005181; DUF303.  
 DR Pfam; PF03629; DUF303; 1.  
 KW Hypothetical protein.  
 FT NON\_TER 1  
 SQ SEQUENCE 521 AA; 58084 MW; B732FCBAFD82FED8 CRC64;

Query Match 59.5%; Score 50; DB 2; Length 521;  
 Best Local Similarity 77.8%; Pred. No. 36;  
 Matches 7; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 2 CCSDPRCAW 10  
 |||||  
 DB 441 CCSDHRCWK 449

## RESULT 8

Q9HAT2 PRELIMINARY; PRT; 523 AA.  
 ID Q9HAT2  
 DT 01-MAR-2001 (TREMELrel. 16, Created)  
 DT 01-MAR-2001 (TREMELrel. 16, Last sequence update)  
 DT 25-OCT-2004 (TREMELrel. 28, Last annotation update)  
 DE Sialic acid-specific acetyltransferase II (Cytosolic sialic acid 9-O-acetyltransferase homolog).  
 GN Name=CSE-C;  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Testis;  
 RA Zhu H., Zhou Z.M., Sha J.H.;  
 RL Submitted (SEP-2000) to the EMBL/GenBank/DBJ databases.  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Brain;  
 RX MEDLINE=22388257; PubMed=12477932; DOI=10.1073/pnas.242603899;  
 RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,  
 RA Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,  
 RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,  
 RA Hopkins R.P., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,  
 RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,  
 RA Stapleton M., Soares M.B., Bonaldo M.P., Casavant T.L., Scheetz T.E.,  
 RA Brownstein M.J., Ustin T.B., Toshiyuki S., Carninci P., Prange C.,  
 RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,  
 RA Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,  
 RA Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,  
 RA Villalón D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A., Sanchez A.,  
 RA Fahey J., Helton E., Kettelman M., Madan A., Rodrigues S., Sanchez A.,  
 RA Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,  
 RA Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,  
 RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M., Butterfield Y.S.,  
 RA Krzywinski M.I., Skalska U., Smalish U., Schnerch A., Schein J.E.,  
 RA Jones S.J., Marra M.A.;  
 RT "Generation and initial analysis of more than 15,000 full-length human  
 and mouse cDNA sequences.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903 (2002).  
 RN [3]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Brain;  
 RA Strausberg R.;  
 RL Submitted (APR-2004) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF303378; AAG14897.1; -  
 DR EMBL; BC068450; AAG68450.1; -  
 DR InterPro; IPR005181; DUF303.  
 DR Pfam; PF03629; DUF303; 1.  
 SQ SEQUENCE 523 AA; 58314 MW; B72CF69636DBFED8 CRC64;

Query Match 59.5%; Score 50; DB 2; Length 523;  
 Best Local Similarity 77.8%; Pred. No. 36;  
 Matches 7; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 2 CCSDPRCAW 10  
 |||||  
 DB 443 CCSDHRCWK 451

## RESULT 9

QXAL CONTE STANDARD; PRT; 69 AA.  
 ID QXAL CONTE  
 AC Q9XZK6;  
 DT 16-OCT-2001 (Rel. 40, Created)  
 DT 16-OCT-2001 (Rel. 40, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Alpha-type conotoxin Txi precursor.  
 OS Conus textile (Cloth-of-gold cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=6494;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Venom duct;  
 RX MEDLINE=20037955; PubMed=10573284; DOI=10.1016/S0196-9781(99)00116-3;  
 RA Lu B.-S., Yu P., Zhao D., Huang P.-T., Huang C.-F.;  
 RA "Conopeptides from Conus striatus and Conus textile by cDNA cloning.";  
 RL Peptides 20:1139-1144 (1999).  
 CC -!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they  
 bind to the nicotinic acetylcholine receptors (nAChR) and thus

CC inhibit them (By similarity).

CC -!- SUBCELLULAR LOCATION: Secreted.

CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.

CC -!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type family.

CC -----

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CC -----

DR EMBL; AF146352; AAD31912.1; -.

DR InterPro; IPR009958; Toxin\_8.

DR Pfam; PF07365; Toxin\_8; 1.

KW Acetylcholine receptor inhibitor; Amidation; Neurotoxin;

KW Postsynaptic neurotoxin; Signal; Toxin.

FT SIGNAL 1 21 Potential.

FT PROPEP 22 49 By similarity.

FT PEPTIDE 50 66 Alpha-type conotoxin Tx1.

FT DISULFID 51 57 By similarity.

FT DISULFID 52 65 By similarity.

FT MOD\_RES 66 66 Glycine amide (G-67 provides amide group).

FT SEQUENCE 69 AA; 7442 MW; E36ECE90BF1B56B0 CRC64;

Query Match 58.3%; Score 49; DB 1; Length 69;

Best Local Similarity 100.0%; Pred. No. 8.1;

Matches 7; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 CCSDPRC 8

DB 51 CCSDPRC 57

RESULT 10

Q7XUD4 PRELIMINARY; PRT; 324 AA.

AC Q7XUD4

DT 01-OCT-2003 (TREMBlrel. 25, Created)

DT 01-MAR-2004 (TREMBlrel. 26, Last sequence update)

DT 01-MAR-2004 (TREMBlrel. 26, Last annotation update)

DE OSJNBa0088A01.12 protein.

GN Name=OSJNBa0088A01.12;

OS Oryza sativa (japonica cultivar-group).

OC Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

OC Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;

OC Ehrhartoideae; Oryzeae; Oryza.

OX NCBI\_TaxID=39947;

RN [1]

RP SEQUENCE FROM N.A.

RX PubMed=12447439; DOI=10.1038/nature01183;

RA Feng Q., Zhang Y., Hao P., Wang S., Fu G., Huang Y., Li Y., Zhu J., Liu Y., Hu X., Jia P., Zhang Y., Zhao Q., Ying K., Yu S., Tang Y., Wang Q., Zhang L., Lu Y., Mu J., Sun T., Lei H., Li T., Hu H., Guan J., Liu X., Lu T., Li C., Wu Y., Sun T., Chen L., Jin Z., Wang R., Yin H., Wu M., Zhang R., Zhou B., Chen Z., Zhang L., Jia J., Zhang Y., Cai Z., Ren S., Lv G., Gu W., Zhu G., Tu Y., Jia J., Zhang X., Zhang W., Chen J., Kang H., Chen X., Shao C., Sun Y., Hu Q., Zhang X., Zhang W., Wang L., Ding C., Sheng H., Gu J., Chen S., Ni L., Zhu F., Chen W., Lan L., Lai Y., Cheng Z., Gu M., Jiang J., Li J., Hong G., Xue Y., Han B.,

RT "Sequence and analysis of rice chromosome 4.";

RL Nature 420:316-320(2002).

DR EMBL; AL662987; CAD41372.2; -.

DR Gramene; Q7XUD4; -.

DR InterPro; IPR001810; F-box.

DR Pfam; PF00646; F-box; 1.

SQ SEQUENCE 324 AA; 35012 MW; 0340F995B310580C CRC64;

Query Match 57.7%; Score 48.5; DB 2; Length 324;

Best Local Similarity 69.2%; Pred. No. 39;

Matches 9; Conservative 0; Mismatches 3; Indels 1; Gaps 1;

QY 1 GCCSDPRCAW-RC 12

DB 149 GLCSSGRCAWLR 161

RESULT 11

Q67RJ6 PRELIMINARY; PRT; 185 AA.

AC Q67RJ6

DT 25-OCT-2004 (TREMBlrel. 28, Created)

DT 25-OCT-2004 (TREMBlrel. 28, Last sequence update)

DT 25-OCT-2004 (TREMBlrel. 28, Last annotation update)

DE Anaerobic dimethyl sulfoxide reductase subunit B.

GN Name=dmsB2; ORFNames=STH712;

OS Symbiobacterium thermophilum.

OC Bacteria; Actinobacteria; Symbiobacterium.

OX NCBI\_TaxID=2734;

RN [1]

RP SEQUENCE FROM N.A.

RC STRAIN=IAM14863;

RA Ueda K., Yamashita A., Ishikawa J., Shimada M., Watsuiji T., Morimura K., Ikeda H., Hattori M., Beppu T.;

RA "Complete genome sequence of an uncultured bacterium Symbiobacterium thermophilum.";

RL Submitted (APR-2004) to the EMBL/GenBank/DBJ databases.

DR EMBL; AP006840; BAD39697.1; -.

DR InterPro; IPR001450; 4Fe4S\_ferredoxin.

DR Pfam; PF00037; Fer4; 2.

DR PRINTS; PRO0353; 4FE4SFRDOXIN.

DR PROSITE; PS00198; 4FE4S\_FERREDOXIN; 1.

KW 4Fe-4S; Iron; Iron-sulfur; Metal-binding.

SQ SEQUENCE 185 AA; 20562 MW; 2E1D61371C3D2DB0 CRC64;

Query Match 56.0%; Score 47; DB 2; Length 185;

Best Local Similarity 70.0%; Pred. No. 38;

Matches 7; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 3 CSDPRCAWRC 12

DB 61 CSDPRCVTNC 70

RESULT 12

Q8PEE9 PRELIMINARY; PRT; 493 AA.

AC Q8PEE9

DT 01-OCT-2002 (TREMBlrel. 22, Created)

DT 01-OCT-2002 (TREMBlrel. 22, Last sequence update)

DT 01-MAR-2004 (TREMBlrel. 26, Last annotation update)

DE Glutamate synthase, beta subunit.

GN Name=gltd; OrderedLocusNames=XCC00311;

OS Xanthomonas campestris (pv. campestris).

OC Bacteria; Proteobacteria; Gammaproteobacteria; Xanthomonadales;

OC Xanthomonadaceae; Xanthomonas.

OX NCBI\_TaxID=340;

RN [1]

RP SEQUENCE FROM N.A.

RC STRAIN=ATCC 33913 / NCPPB 528;

RX MEDLINE=2022145; PubMed=12024217; DOI=10.1038/417459a;

RA da Silva A.C.R., Ferro J.A., Reinach F.C., Farah C.S., Furlan L.R., Quaggio R.B., Monteiro-Vitorello C.B., Van Sluys M.A., Almeida N.F., Alves L.M.C., do Amaral A.M., Bertolini M.C., Camargo L.E.A., Camarotte G., Cannavan F., Cardoso J., Chambergo F., Ciapina L.P., Cicarelli R.M.B., Coutinho L.L., Cursino-Santos J.R., El-Dorri H., Faria J.B., Ferreira A.J.S., Ferreira R.C.C., Ferro M.I.T., Formighieri E.F., Franco M.C., Greggio C.C., Gruber A., Katuyama A.M., Kishi L.T., Leite R.P., Lemos E.G.M., Lemos M.V.F., Locati E.C., Machado M.A., Madeira A.M.B.N., Martinez-Rossi N.M., Martins E.C., Meidanis J., Menck C.F.M., Miyaki C.Y., Moon D.H., Moreira L.M., Novo M.T.M., Okura V.K., Oliveira M.C., Oliveira V.R.,

RA Pereira H.A., Rossi A., Sena J.A.D., Silva C., de Souza R.F.,  
RA Spinola L.A.F., Takita M.A., Tamura R.E., Teixeira E.C., Tezza R.I.D.,  
RA Trindade dos Santos M., Truffi D., Tsai S.M., White F.F.,  
RA Setubal J.C., Kitajima J.P.;  
RT "Comparison of the genomes of two Xanthomonas pathogens with differing  
RT host specificities";  
RL Nature 417:459-463 (2002).  
DR EMBL; AB012096; AAM3350.1; --  
DR HSSP; Q28943; 1H7W.  
DR GO; GO:0015036; F:disulfide oxidoreductase activity; IEA.  
DR GO; GO:0005489; F:electron transporter activity; IEA.  
DR GO; GO:0005506; F:iron ion binding; IEA.  
DR GO; GO:0016639; F:oxidoreductase activity, acting on the CH-N. . .; IEA.  
DR GO; GO:0006118; P:electron transport; IEA.  
DR GO; GO:0006537; P:glutamate biosynthesis; IEA.  
DR InterPro; IPR001450; 4Fe4S\_ferredoxin.  
DR InterPro; IPR000759; Adrnx\_reductase.  
DR InterPro; IPR001327; FAD\_pyr\_redox.  
DR InterPro; IPR006006; Glut\_synth\_sub2.  
DR InterPro; IPR00205; NAD\_BS.  
DR InterPro; IPR001100; Pyr\_redox.  
DR Pfam; PF00070; Pyr\_redox; 1.  
DR PRINTS; PR00353; 4FE4SFRDOXIN.  
DR PRINTS; PR00419; ADXRDTASE.  
DR PRINTS; PR00368; FADPNR.  
DR PRINTS; PR00411; PNDRDTASEI.  
DR TIGRFAMs; TIGR01318; gltD\_gamma\_fam; 1.  
KW Complete proteome.  
SQ SEQUENCE 493 AA; 52731 MW; 5805D3EDA65F3BAA CRC64;

Query Match 56.0%; Score 47; DB 2; Length 493;  
Best Local Similarity 50.0%; Pred. No. 90;  
Matches 5; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

QY 3 CSDPRCAWRC 12  
DB 52 CGNPYCSWKC 61

RESULT 13  
Q8PRD1 PRELIMINARY; PRT; 493 AA.  
AC Q8PRD1; (Created)  
DT 01-OCT-2002 (TrEMBLrel. 22, Last sequence update)  
DT 01-OCT-2002 (TrEMBLrel. 22, Last sequence update)  
DT 01-MAR-2004 (TrEMBLrel. 26, Last annotation update)  
DE Glutamate synthase beta subunit.  
GN Name=gltD; OrderedLocuNames=XAC0032;  
OS Xanthomonas axonopodis (pv. citri).  
OC Bacteria; Proteobacteria; Gammaproteobacteria; Xanthomonadales;  
OC Xanthomonadaceae; Xanthomonas.  
OX NCBI\_TaxID=52829;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC STRAIN=306 / ATCC 13902 / XV 101;  
RX MEDLINE=2022145; PubMed=1204217; DOI=10.1038/417459a;  
RA da Silva A.C.R., Ferro J.A., Reinach F.C., Farah C.S., Furlan L.R.,  
RA Quaggio R.B., Monteiro-Vitorello C.B., Van Sluys M.A., Almeida N.F.,  
RA Alves L.M.C., do Amaral A.M., Bertolini M.C., Camargo L.E.A.,  
RA Camarotte G., Cannavan F., Cardozo J., Chambergo F., Ciapina L.P.,  
RA Cicarelli R.M.B., Coutinho L.L., Cursino-Santos J.R., El-Dorri H.,  
RA Faria J.B., Ferreira A.J.S., Ferreira R.C.C., Ferro M.I.T.,  
RA Formighieri E.F., Franco M.C., Greggio C.C., Gruber A.,  
RA Katsuyama A.M., Kishi L.T., Leite R.P., Lemos E.G.M., Lemos M.V.F.,  
RA Locali E.C., Machado M.A., Madeira A.M.B.N., Martinez-Rossi N.M.,  
RA Martins E.C., Meidanis J., Mencia C.F.M., Miyaki C.Y., Moon D.H.,  
RA Moreira L.M., Novo M.T.M., Okura V.K., Oliveira M.C., Oliveira V.R.,  
RA Pereira H.A., Rossi A., Sena J.A.D., Silva C., de Souza R.F.,  
RA Spinola L.A.F., Takita M.A., Tamura R.E., Teixeira E.C., Tezza R.I.D.,  
RA Trindade dos Santos M., Truffi D., Tsai S.M., White F.F.,  
RT "Comparison of the genomes of two Xanthomonas pathogens with differing  
RT host specificities";

RL Nature 417:459-463 (2002).  
DR EMBL; AB011626; AAM34924.1; --  
DR HSSP; Q28943; 1H7W.  
DR GO; GO:0015036; F:disulfide oxidoreductase activity; IEA.  
DR GO; GO:0005489; F:electron transporter activity; IEA.  
DR GO; GO:0005506; F:iron ion binding; IEA.  
DR GO; GO:0016639; F:oxidoreductase activity, acting on the CH-N. . .; IEA.  
DR GO; GO:0006118; P:electron transport; IEA.  
DR GO; GO:0006537; P:glutamate biosynthesis; IEA.  
DR InterPro; IPR001450; 4Fe4S\_ferredoxin.  
DR InterPro; IPR000759; Adrnx\_reductase.  
DR InterPro; IPR001327; FAD\_pyr\_redox.  
DR InterPro; IPR006006; Glut\_synth\_sub2.  
DR InterPro; IPR00205; NAD\_BS.  
DR InterPro; IPR001100; Pyr\_redox.  
DR Pfam; PF00070; Pyr\_redox; 1.  
DR PRINTS; PR00353; 4FE4SFRDOXIN.  
DR PRINTS; PR00419; ADXRDTASE.  
DR PRINTS; PR00368; FADPNR.  
DR PRINTS; PR00411; PNDRDTASEI.  
DR TIGRFAMs; TIGR01318; gltD\_gamma\_fam; 1.  
KW Complete proteome.  
SQ SEQUENCE 493 AA; 52681 MW; B0C9569C55FB3251 CRC64;

Query Match 56.0%; Score 47; DB 2; Length 493;  
Best Local Similarity 50.0%; Pred. No. 90;  
Matches 5; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

QY 3 CSDPRCAWRC 12  
DB 52 CGNPYCSWKC 61

RESULT 14  
Q879X7 PRELIMINARY; PRT; 494 AA.  
AC Q879X7; (Created)  
DT 01-JUN-2003 (TrEMBLrel. 24, Last sequence update)  
DT 01-JUN-2003 (TrEMBLrel. 24, Last sequence update)  
DT 01-MAR-2004 (TrEMBLrel. 26, Last annotation update)  
DE Glutamate synthase, beta subunit.  
GN Name=gltD; OrderedLocuNames=PD2062;  
OS Xylella fastidiosa (strain Temeculal / ATCC 700964).  
OC Bacteria; Proteobacteria; Gammaproteobacteria; Xanthomonadales;  
OC Xanthomonadaceae; Xylella.  
OX NCBI\_TaxID=183190;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE=22421331; PubMed=12533478;  
RX DOI=10.1128/JB.185.3.1018-1026.2003;  
RA Van Sluys M.A., de Oliveira M.C., Monteiro-Vitorello C.B., Moon D.H.,  
RA Miyaki C.Y., Furlan L.R., Camargo L.E.A., da Silva A.C.R., Silva F.R.,  
RA Takita M.A., Lemos E.G.M., Machado M.A., Ferro M.I.T., da Silva F.R.,  
RA Goldman M.H.S., Goldman G.H., Lemos M.V.F., El-Dorri H., Tsai S.M.,  
RA Carrer H., Carriaro D.M., de Oliveira R.C., Nunes L.R., Siqueira W.J.,  
RA Coutinho L.L., Kimura E.T., Ferro E.S., Harakava R., Kuramae E.E.,  
RA Marino C.L., Gigliotti E., Abreu I.L., Alves L.M.C., do Amaral A.M.,  
RA Baia G.S., Blanco S.R., Brito M.S., Camavan F.S., Celestino A.V.,  
RA da Cunha A.F., Fenille R.C., Ferro J.A., Formighieri E.F., Kishi L.T.,  
RA Leoni S.G., Oliveira A.R., Rosa V.B. Jr., Sassaki F.T., Sena J.A.D.,  
RA de Souza A.A., Truffi D., Tsukumo F., Yanai G.M., Zaros L.G.,  
RA Civerolo E.L., Simpson A.J.G., Almeida N.F. Jr., Setubal J.C.,  
RA Kitajima J.P.;  
RT "Comparative analyses of the complete genome sequences of Pierce's  
RT disease and citrus variegated chlorosis strains of Xylella  
RT fastidiosa";  
RL J. Bacteriol. 185:1018-1026(2003).  
DR EMBL; AB012561; AAO29886.1; --  
DR HSSP; Q28943; 1GTE.  
DR GO; GO:0015036; F:disulfide oxidoreductase activity; IEA.  
DR GO; GO:0005489; F:electron transporter activity; IEA.  
DR GO; GO:0005506; F:iron ion binding; IEA.  
DR GO; GO:0016639; F:oxidoreductase activity, acting on the CH-N. . .; IEA.

DR GO; GO:0006118; P:electron transport; IEA.  
 DR GO; GO:0006537; P:glutamate biosynthesis; IEA.  
 DR InterPro; IPR001450; 4Fe4S\_ferredoxin.  
 DR InterPro; IPR000759; Adrnx reductase.  
 DR InterPro; IPR001327; FAD pyr redox.  
 DR InterPro; IPR006006; Glut synth\_sub2.  
 DR InterPro; IPR000205; NAD ES.  
 DR InterPro; IPR001100; Pyr\_redox.  
 DR Pfam; PF00070; Pyr\_redox; 1.  
 DR PRINTS; PR00353; 4FE4SFRDOXIN.  
 DR PRINTS; PR00419; ADXRDTASE.  
 DR PRINTS; PR00368; FADPNR.  
 DR PRINTS; PR00411; ENDRDTASEI.  
 DR TIGRPMs; TIGR01318; glcD\_gamma\_fam; 1.  
 KW Complete proteome.  
 SQ SEQUENCE 494 AA; 53510 MW; DFD84F03B9029AD4 CRC64;

Query Match 56.0%; Score 47; DB 2; Length 494;

Best Local Similarity 50.0%; Pred. No. 90;  
 Matches 5; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

QY 3 CSDPRCAWRC 12

Db 52 CGNPYCSWKC 61

# RESULT 15

Q9PA11

AC Q9PA11 PRELIMINARY; PRT; 494 AA.

DT 01-OCT-2000 (TRENBLrel. 15, Created)

DT 01-OCT-2000 (TRENBLrel. 15, Last sequence update)

DT 01-MAR-2004 (TRENBLrel. 26, Last annotation update)

DE Glutamate synthase, beta subunit.

GN OrderedLocNames=Xf2709;

OS Xylella fastidiosa.

OC Bacteria; Proteobacteria; Gammaproteobacteria; Xanthomonadales;

OC Xanthomonadaceae; Xylella.

OX NCBI\_TaxID=2371;

RN [1]

RP SEQUENCE FROM N.A.

RC STRAIN=9a5c;

RA MEDLINE=20365717; PubMed=10910347; DOI=10.1038/35018003;

RA Simpson A.J.G., Reinach F.C., Arruda P., Abreu F.A., Acencio M.,

RA Alvares R., Alves L.M.C., Araya J.E., Baia G.S., Baptista C.S.,

RA Barros M.H., Bonaccorsi E.D., Bordin S., Bove J.M., Briones M.R.S.,

RA Bueno M.R.P., Camargo A.A., Canargo L.E.A., Carraro D.M., Carrier H.,

RA Colauto N.B., Colombo C., Costa F.P., Costa M.C.R., Costa-Neto C.M.,

RA Coutinho L.L., Cristofani M., Dias-Neto E., Docena C., El-Dorri H.,

RA Facinani A.P., Ferreira A.J.S., Ferreira V.C.A., Ferro J.A.,

RA Fraga J.S., Franca S.C., Franco M.C., Frohne M., Furlan L.R.,

RA Garnier M., Goldman G.H., Goldman M.H.S., Gomes S.L., Gruber A.,

RA Ho P.L., Hoheisel J.D., Junqueira M.L., Kemper E.L., Kitajima J.P.,

RA Krieger J.E., Kuramae E.B., Laigret F., Lambais M.R., Leite L.C.C.,

RA Lemos E.G.M., Lemos M.V.F., Lopes S.A., Lopes C.R., Machado J.A.,

RA Machado M.A., Madeira A.M.B.N., Madeira H.M.F., Marino C.L.,

RA Marques M.V., Martins E.A.L., Martins E.M.F., Matsukuma A.Y.,

RA Menck C.F.M., Miracca E.C., Miyaki C.Y., Monteiro-Vitorello C.B.,

RA Moon D.H., Nagai M.A., Nascimento A.L.T.O., Netto L.E.S.,

RA Nhani A. Jr., Nobrega F.G., Nunes L.R., Oliveira M.A.,

RA de Oliveira M.C., de Oliveira R.C., Palmieri D.A., Paris A.,

RA Peixoto B.R., Pereira G.A.G., Pereira H.A. Jr., Pesquero J.B.,

RA Quaggio R.B., Roberto P.G., Rodrigues V., de Rosa A.J.M.,

RA de Rosa V.E. Jr., de Sa R.G., Santelli R.V., Sawasaki H.E.,

RA da Silva A.C.R., da Silva A.M., da Silva P.R., Silva W.A. Jr.,

RA da Silva J.F., Silvestri M.L.Z., Siqueira W.J., de Souza A.A.,

RA de Souza A.P., Terenzi M.F., Truffi D., Tsai S.M., Tshako M.H.,

RA Vallada H., Van Sluys M.A., Verjovski-Almeida S., Vettore A.L.,

RA Zago M.A., Zatz M., Meidanis J., Setubal J.C.;

RT "The genome sequence of the plant pathogen Xylella fastidiosa.";

RL Nature 406:151-159(2000).

DR EMBL; AF004077; AAF85506.1; -.

DR PIR; H82523; H82523.

DR HSP; P11959; 1EBD.  
 DR GO; GO:0005036; F:disulfide oxidoreductase activity; IEA.  
 DR GO; GO:0005489; F:electron transporter activity; IEA.  
 DR GO; GO:0005506; F:iron ion binding; IEA.  
 DR GO; GO:0016639; F:oxidoreductase activity, acting on the CH-N. . .; IEA.  
 DR GO; GO:0006118; P:electron transport; IEA.  
 DR GO; GO:0006537; P:glutamate biosynthesis; IEA.  
 DR InterPro; IPR001450; 4Fe4S\_ferredoxin.  
 DR InterPro; IPR000759; Adrnx reductase.  
 DR InterPro; IPR001327; FAD pyr redox.  
 DR InterPro; IPR006006; Glut synth\_sub2.  
 DR InterPro; IPR000205; NAD ES.  
 DR InterPro; IPR001100; Pyr\_redox.  
 DR Pfam; PF00070; Pyr\_redox; 1.  
 DR PRINTS; PR00353; 4FE4SFRDOXIN.  
 DR PRINTS; PR00419; ADXRDTASE.  
 DR PRINTS; PR00368; FADPNR.  
 DR PRINTS; PR00411; ENDRDTASEI.  
 DR TIGRPMs; TIGR01318; glcD\_gamma\_fam; 1.  
 KW Complete proteome.  
 SQ SEQUENCE 494 AA; 53461 MW; ADBDBE95F0B0BCAB CRC64;

Query Match 56.0%; Score 47; DB 2; Length 494;

Best Local Similarity 50.0%; Pred. No. 90;

Matches 5; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

QY 3 CSDPRCAWRC 12

Db 52 CGNPYCSWKC 61

Search completed: March 23, 2005, 00:16:45

Job time : 34.0396 secs

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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:16:20 ; Search time 8.9769 Seconds  
(without alignments)  
171.492 Million cell updates

**Title:** US-09-787-082A-24  
**Perfect score:** 102  
**Sequence:** 1 GCCSNPBCHLEHSNLC 16

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues

**Total number of hits satisfying chosen parameters: 283416**

Minimum DB seq length: 0

**Maximum DB seq length:** 2000000000

**Post-processing:**

- Minimum Match 0%
- Maximum Match 100%
- Listing first 45

Database : PIR 79: \*

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1:  pir1:*
2:  pir2:*
3:  pir3:*
4:  pir4:*

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query		DB	ID	Description
		Match	Length			
1	95	93	1	16	2	A59046
2	56	54	9	16	2	alpha-conotoxin MI
3	51	50	0	16	2	alpha-conotoxin Ep
4	50	49	0	16	2	alpha-conotoxin Au
5	50	49	0	16	2	alpha-conotoxin Au
6	46	45	1	18	1	alpha-conotoxin Pn
7	46	45	1	18	1	alpha-conotoxin EI
8	46	45	1	329	2	hypothetical prote
9	46	45	1	356	2	hypothetical zinc-
10	46	45	1	383	2	benzoate membrane
11	46	45	1	525	2	RNA-binding protei
12	46	45	1	589	2	epithelin/granulin
13	46	45	1	1007	2	hypothetical prote
14	45	44	1	16	2	alpha-conotoxin Pn
15	45	44	1	60	2	probable histidine
16	45	44	1	337	2	hypothetical prote
17	44	43	6	2123	2	probable acetyl-Co
18	44	43	1	434	2	S-locus-specific G
19	44	43	1	12	1	alpha-conotoxin Im
20	44	43	1	1046	2	hypothetical prote
21	43	42	6	169	2	transposase - Esch
22	43	42	6	227	2	hypothetical prote
23	43	42	2	15	2	alpha-conotoxin Au
24	43	42	2	19	2	alpha-conotoxin SI
25	43	42	2	398	1	E2 protein - human
26	43	42	2	426	2	transposase tnnpA (
27	43	42	2	493	2	cysteine proteinas
28	43	42	2	507	2	trp-asp repeat pro
29	42	41	7	790	2	S-receptor kinase
30	42	41	7	375	1	alcohol dehydrogen

30	42	41.2	221	2	T37244	GATA transcription
31	42	41.2	380	1	DEJYAW	alcohol dehydrogen
32	42	41.2	380	1	S00912	alcohol dehydrogen
33	42	41.2	604	2	B84833	hypothetical prote
34	42	41.2	607	2	S49528	endoxylanase - rum
35	42	41.2	607	2	S24754	endo-1,4-beta-xyla
36	42	41.2	676	2	AH2195	hypothetical prote
37	42	41.2	677	2	AE1861	serine/threonine k
38	42	41.2	1007	2	T13693	hypothetical prote
39	42	41.2	1644	2	F91286	hypothetical prote
40	42	41.2	1644	2	B86128	hypothetical prote
41	42	41.2	2123	2	F86348	hypothetical prote
42	42	41.2	2195	2	T34264	hypothetical prote
43	41.5	40.7	54	2	F31444	ovomucoid 1, third
44	41.5	40.7	625	1	KPFI1	coagulation factor
45	41.5	40.7	1295	2	A32901	aloi protein prescu

## ALIGNMENTS

## RESULT 1

A59046  
alpha-conotoxin MII - cone shell (Conus magus)  
C:Species: Conus magus (magnus cone)  
C:date: 16-Jul-1999 #sequence\_revision 16-Jul-1999 #tex  
C:Accession: A59046  
R:Carrier, G.E.; Yoshikami, D.; Gray, W.R.; Luo, S.; Ol  
J. Biol. Chem. 271, 7522-7528, 1996  
A:title: A new alpha-conotoxin which targets alpha3beta  
A:Reference number: A59046; MUID:96205934; PMID:8631783

A;Accession: A59046  
A;Status: preliminary  
A;Molecule type: protein  
A;Residues: 1-16 <CAR>  
A;Cross-references: UNIPROT:P56636  
C;Superfamily: alpha-conotoxin  
C;Keywords: acetylcholine receptor inhibitor; amidated carboxyl end;  
F;1-16/Product: alpha-conotoxin MII #status experimental <WAT>  
F;2-8, 3-16/Disulfide bonds: #status experimental  
F;16/Modified site: amidated carboxyl end (Cvs) #status experimental

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Query Match          93.1%; Score 95; DB 2; Length 16;
Best Local Similarity 93.8%; Pred. No. 2e-06;
Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
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**Qy**

1 GCCSNPBCHLEHSNLC 16  
|||||

**Dd**

1 GCCSNPVCHELSNLC 16  
|||||

## RESULT 2

A59042  
 A59042  
 alpha-conotoxin Epi - cone shell (*Conus episcopatus*)  
 C:Species: *Conus episcopatus* (bishop's cone)  
 C:date: 23-Jul-1999 #sequence\_revision 23-Jul-1999 #text\_change 09-Jul-2004  
 C:Accession: A59042  
 R:Goughan, M.; Bond, T.; Atkins, A.; Cuevas, J.; Adams, D.J.; Broxton, N.M.  
 J. Biol. Chem. 273, 15667-15674, 1998  
 A:Title: Alpha-conotoxin Epi, a novel sulfated peptide from *Conus episcopatus*  
 A:Reference number: A59042; PMID:98288307; PMID:9624161

A;Accession: A59042  
A;Status: preliminary  
A;Molecule type: protein  
A;Residues: 1-16 <LOU>  
A;Cross-references: UNIPROT:P56638

C/Superfamily: alpha-conotoxin  
C/Binding site: alpha-conotoxin  
C/Keywords: acetylcholine receptor inhibitor; amidated carboxyl end;  
F/1-16/Product: alpha-conotoxin Epi #status experimental <MAT>  
F/2-8,3-16/Disulfide bonds: #status experimental  
F/15/Binding site: sulfate (Tyr) (covalent) #status experimental  
F/16/Modified site: amidated carboxyl end (Cvs) #status experimental

Query Match 54.9%; Score 56; DB 2; Length 16;  
Best Local Similarity 43.8%; Pred. No. 0.28;  
Matches 7; Conservative 5; Mismatches 4; Indels 0; Gaps 0;

QY 1 GCCSNPBCHEHSNLC 16  
|||:|:|:  
Db 1 GCCSDPRCMMNPDC 16

RESULT 3  
A:Accession: A59045  
alpha-conotoxin Au1A - cone shell (Conus aulicus)  
C:Species: Conus aulicus (court cone)  
C:Date: 23-Jul-1999 #sequence\_revision 23-Jul-1999 #text\_change 09-Jul-2004  
C:Accession: A59045  
R:Ruo, S.; Kulak, J.M.; Cartier, G.E.; Jacobsen, R.B.; Yoshikami, D.; Olivera, B.M.; McI  
J. Neurosci. 18, 8571-8579, 1998  
A:Title: Alpha-conotoxin Au1B selectively blocks alpha3beta4 nicotinic acetylcholine rec  
A:Reference number: A59045; MUID:99003392; PMID:9786965  
A:Accession: A59045  
A>Status: preliminary  
A:Molecule type: protein  
A:Residues: 1-16 <LUO>  
A:Cross-references: UNIPROT:P56639  
C:Superfamily: alpha-conotoxin  
C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neuro  
F:1-16/Product: alpha-conotoxin Au1A #status experimental  
F:2-8,3-16/Disulfide bonds: #status experimental  
F:16/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 50.0%; Score 51; DB 2; Length 16;  
Best Local Similarity 50.0%; Pred. No. 1.3;  
Matches 8; Conservative 2; Mismatches 6; Indels 0; Gaps 0;

QY 1 GCCSNPBCHEHSNLC 16  
|||:|:|:  
Db 1 GCCSYPPCFATNSDYC 16

RESULT 4  
C59045  
alpha-conotoxin Au1C - cone shell (Conus aulicus)  
C:Species: Conus aulicus (court cone)  
C:Date: 23-Jul-1999 #sequence\_revision 23-Jul-1999 #text\_change 09-Jul-2004  
C:Accession: C59045  
R:Ruo, S.; Kulak, J.M.; Cartier, G.E.; Jacobsen, R.B.; Yoshikami, D.; Olivera, B.M.; McI  
J. Neurosci. 18, 8571-8579, 1998  
A:Title: Alpha-conotoxin Au1B selectively blocks alpha3beta4 nicotinic acetylcholine rec  
A:Reference number: A59045; MUID:99003392; PMID:9786965  
A:Accession: C59045  
A>Status: preliminary  
A:Molecule type: protein  
A:Residues: 1-16 <LUO>  
A:Cross-references: UNIPROT:P56641  
C:Superfamily: alpha-conotoxin  
C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neuro  
F:1-16/Product: alpha-conotoxin Au1C #status experimental  
F:2-8,3-16/Disulfide bonds: #status experimental  
F:16/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 49.0%; Score 50; DB 2; Length 16;  
Best Local Similarity 50.0%; Pred. No. 1.7;  
Matches 8; Conservative 1; Mismatches 7; Indels 0; Gaps 0;

QY 1 GCCSNPBCHEHSNLC 16  
|||:|:|:  
Db 1 GCCSYPPCFATNSGYC 16

RESULT 5  
B54877  
alpha-conotoxin Pn1B - cone shell (Conus pennaceus)  
C:Species: Conus pennaceus

Query Match 54.9%; Score 56; DB 2; Length 16;  
Best Local Similarity 43.8%; Pred. No. 0.28;  
Matches 7; Conservative 5; Mismatches 4; Indels 0; Gaps 0;

QY 1 GCCSNPBCHEHSNLC 16  
|||:|:|:  
Db 1 GCCSDPRCMMNPDC 16

RESULT 3  
A:Accession: A59045  
alpha-conotoxin Au1A - cone shell (Conus aulicus)  
C:Species: Conus aulicus (court cone)  
C:Date: 23-Jul-1999 #sequence\_revision 23-Jul-1999 #text\_change 09-Jul-2004  
C:Accession: A59045  
R:Ruo, S.; Kulak, J.M.; Cartier, G.E.; Jacobsen, R.B.; Yoshikami, D.; Olivera, B.M.; McI  
J. Neurosci. 18, 8571-8579, 1998  
A:Title: Alpha-conotoxin Au1B selectively blocks alpha3beta4 nicotinic acetylcholine rec  
A:Reference number: A59045; MUID:99003392; PMID:9786965  
A:Accession: A59045  
A>Status: preliminary  
A:Molecule type: protein  
A:Residues: 1-16 <LUO>  
A:Cross-references: UNIPROT:P56639  
C:Superfamily: alpha-conotoxin  
C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neuro  
F:1-16/Product: alpha-conotoxin Au1A #status experimental  
F:2-8,3-16/Disulfide bonds: #status experimental  
F:16/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 50.0%; Score 51; DB 2; Length 16;  
Best Local Similarity 50.0%; Pred. No. 1.3;  
Matches 8; Conservative 2; Mismatches 6; Indels 0; Gaps 0;

QY 1 GCCSNPBCHEHSNLC 16  
|||:|:|:  
Db 1 GCCSYPPCFATNSDYC 16

RESULT 4  
C59045  
alpha-conotoxin Au1C - cone shell (Conus aulicus)  
C:Species: Conus aulicus (court cone)  
C:Date: 23-Jul-1999 #sequence\_revision 23-Jul-1999 #text\_change 09-Jul-2004  
C:Accession: C59045  
R:Ruo, S.; Kulak, J.M.; Cartier, G.E.; Jacobsen, R.B.; Yoshikami, D.; Olivera, B.M.; McI  
J. Neurosci. 18, 8571-8579, 1998  
A:Title: Alpha-conotoxin Au1B selectively blocks alpha3beta4 nicotinic acetylcholine rec  
A:Reference number: A59045; MUID:99003392; PMID:9786965  
A:Accession: C59045  
A>Status: preliminary  
A:Molecule type: protein  
A:Residues: 1-16 <LUO>  
A:Cross-references: UNIPROT:P56641  
C:Superfamily: alpha-conotoxin  
C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neuro  
F:1-16/Product: alpha-conotoxin Au1C #status experimental  
F:2-8,3-16/Disulfide bonds: #status experimental  
F:16/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 49.0%; Score 50; DB 2; Length 16;  
Best Local Similarity 50.0%; Pred. No. 1.7;  
Matches 8; Conservative 1; Mismatches 7; Indels 0; Gaps 0;

QY 1 GCCSNPBCHEHSNLC 16  
|||:|:|:  
Db 1 GCCSYPPCFATNSGYC 16

RESULT 5  
B54877  
alpha-conotoxin Pn1B - cone shell (Conus pennaceus)  
C:Species: Conus pennaceus

C:Date: 19-Mar-1997 #sequence\_revision 25-Apr-1997 #text\_change 09-Jul-2004  
C:Accession: B54877  
R:Painzilber, M.; Haseon, A.; Oren, R.; Burlingame, A.L.; Gordon, D.; Spira, M.E.; Zlotki  
Biochemistry 33, 9523-9529, 1994  
A:Title: New mollusc-specific alpha-conotoxins block Aplysia neuronal acetylcholine recei  
A:Reference number: A54877; MUID:94347719; PMID:8068627  
A:Accession: B54877  
A:Molecule type: protein  
A:Residues: 1-16 <PAI>  
A:Cross-references: UNIPROT:P50985  
C:Comment: This alpha-conotoxin, as an acetylcholine receptor inhibitor, is a postsynapti  
C:Superfamily: alpha-conotoxin  
C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neuro  
F:2-8,3-16/Disulfide bonds: #status experimental  
F:16/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 49.0%; Score 50; DB 2; Length 16;  
Best Local Similarity 50.0%; Pred. No. 1.7;  
Matches 8; Conservative 2; Mismatches 6; Indels 0; Gaps 0;

QY 1 GCCSNPBCHEHSNLC 16  
|||:|:|:  
Db 1 GCCSLPPCALSNPDYC 16

RESULT 6  
A58589  
alpha-conotoxin EI - cone shell (Conus ermineus)  
C:Species: Conus ermineus (ermine cone)  
C:Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change 09-Jul-2004  
C:Accession: A58589  
R:Martinez, J.S.; Olivera, B.M.; Gray, W.R.; Craig, A.G.; Groebe, D.R.; Abramson, S.N.; N  
Biochemistry 34, 14519-14526, 1995  
A:Title: alpha-Conotoxin EI, a new nicotinic acetylcholine receptor antagonist with novel  
A:Reference number: A58589; MUID:96062516; PMID:7578057  
A:Accession: A58589  
A:Molecule type: protein  
A:Residues: 1-18 <MAR>  
A:Cross-references: UNIPROT:P50982  
A>Note: sequence confirmed by chemical synthesis  
C:Comment: This alpha-conotoxin, as an acetylcholine receptor inhibitor, is a postsynapti  
C:Superfamily: alpha-conotoxin  
C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; hydroxyproline; post  
F:3/Modified site: 4-hydroxyproline (Pro) #status experimental  
F:4-10,5-18/Disulfide bonds: #status experimental  
F:18/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 45.1%; Score 46; DB 1; Length 18;  
Best Local Similarity 33.3%; Pred. No. 6.2;  
Matches 5; Conservative 5; Mismatches 5; Indels 0; Gaps 0;

QY 2 CCSNPBCHEHSNLC 16  
|||:|:|:  
Db 4 CCYHPTCNMSNPQIC 18

RESULT 7  
T30513  
hypothetical protein ORF163 - Lymantria dispar nuclear polyhedrosis virus  
C:Species: Lymantria dispar nuclear polyhedrosis virus, LdNPV  
C:Date: 29-Oct-1999 #sequence\_revision 29-Oct-1999 #text\_change 09-Jul-2004  
C:Accession: T30513  
R:Kuzio, J.; Pearson, M.N.; Harwood, S.H.; Funk, C.J.; Evans, J.T.; Slavicek, J.M.; Rohm  
Virology 253, 17-34, 1999  
A:Title: Sequence and analysis of the genome of a baculovirus pathogenic for Lymantria d  
A:Reference number: Z20836; MUID:99124785; PMID:9887315  
A:Accession: T30513  
A>Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: DNA  
A:Residues: 1-329 <KUZ>  
A:Cross-references: UNIPROT:Q9YMG5; EMBL:AF081810; FIDN:AACT0349.1

Query Match 45.1%; Score 46; DB 2; Length 329;

Best Local Similarity 46.7%; Pred. No. 48;  
Matches 7; Mismatches 1; Gaps 0;

QY 2 CCNPNBCHLEHSLC 16  
DB 66 CVCNPNADHYHCNSC 80

RESULT 8  
T40265  
hypothetical zinc-finger protein - fission yeast (Schizosaccharomyces pombe)  
C:Species: Schizosaccharomyces pombe  
C:Date: 03-Dec-1999 #sequence\_revision 03-Dec-1999 #text\_change 09-Jul-2004  
C:Accession: T40265  
R:Lyne, M.; Rajandream, M.A.; Barrell, B.G.; Rieger, M.  
submitted to the EMBL Data Library, October 1998  
A:Reference number: Z21868  
A:Accession: T40265  
A:Status: preliminary; translated from GB/EMBL/DDBJ  
A:Molecule type: DNA  
A:Residues: 1-356 <LYN>  
A:Cross-references: UNIPROT:O74823; EMBL:AL031854; PIDN:CAA21282.1; GSPDB:GN00067; SPDB:  
A:Experimental source: strain 972h; cosmid c337  
C:Genetics:  
A:Gene: SPDB:SPBC337.12  
A:Map position: 2

Query Match 45.1%; Score 46; DB 2; Length 356;  
Best Local Similarity 58.3%; Pred. No. 51;  
Matches 7; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 GCCNPNBCHLEH 12  
DB 300 GSCNPNQCSLYH 311

RESULT 9  
AF3503  
benzoate membrane transport protein [imported] - Brucella melitensis (strain 16M)  
C:Species: Brucella melitensis  
C:Date: 01-Feb-2002 #sequence\_revision 01-Feb-2002 #text\_change 09-Jul-2004  
R:DelVecchio, V.G.; Kapatal, V.; Redkar, R.J.; Patra, G.; Mujer, C.; Los, T.; Ivanova,  
.; Mazur, M.; Goldsman, B.; Seikov, E.; Elzer, P.H.; Hagius, S.; O'Callaghan, D.; Letess  
Proc. Natl. Acad. Sci. U.S.A. 99, 443-448, 2002  
A:Title: The genome sequence of the facultative intracellular pathogen Brucella melitensis  
A:Reference number: AD3252; PMID:11756688  
A:Accession: AF3503  
A:Status: preliminary  
A:Molecule type: DNA  
A:Residues: 1-383 <KUR>  
A:Cross-references: UNIPROT:Q8Y666; GB:AE008917; PIDN:AAL53193.1; PID:g17984067; GSPDB:G  
A:Experimental source: strain 16M  
C:Genetics:  
A:Gene: EMBL12012  
A:Map position: 1

Query Match 45.1%; Score 46; DB 2; Length 383;  
Best Local Similarity 54.5%; Pred. No. 53;  
Matches 6; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

QY 3 CCNPNBCHLEH 13  
DB 268 CTNPDADPDHS 278

RESULT 10  
B48058  
RNA-binding protein NAB2 - Yeast (Saccharomyces cerevisiae)  
N:Alternate names: protein G2910; protein YGL122C  
C:Species: Saccharomyces cerevisiae  
C:Date: 03-May-1994 #sequence\_revision 03-May-1994 #text\_change 09-Jul-2004  
C:Accession: B48058; A48058; S64132

R:Anderson, J.T.; Wilson, S.M.; Datar, K.V.; Swanson, M.S.  
Mol. Cell. Biol. 13, 2730-2741, 1993  
A:Title: NAB2: a yeast nuclear polyadenylated RNA-binding protein essential for cell via  
A:Reference number: A48058; MUID:93233636; PMID:8474438  
A:Accession: B48058  
A:Molecule type: DNA  
A:Residues: 1-525 <AND>  
A:Cross-references: UNIPROT:P32505; GB:LI0288; NID:G295628; PIDN:AAA34819.1; PID:G295629  
A:Experimental source: strain BJ926  
A:Accession: A48058  
A:Molecule type: DNA  
A:Residues: 1-120,149-525 <ANW>  
A:Cross-references: EMBL:L08079; NID:G295630; PIDN:AAA34820.1; PID:G295631  
A:Experimental source: strain YNN318  
A:Note: sequence extracted from NCBI backbone (NCBIN:129803, NCBIP:129804)  
R:lauguin, G.  
submitted to the Protein Sequence Database, May 1996  
A:Reference number: S64122  
A:Accession: S64132  
A:Molecule type: DNA  
A:Residues: 1-525 <LAU>  
A:Cross-references: EMBL:Z72644; NID:G1322680; PID:e243350; PID:G1322681; MIPS:YGL122C  
A:Experimental source: strain S288C  
C:Genetics:  
A:Gene: SGD:NAB2  
A:Cross-references: SGD:S0003090; MIPS:YGL122C  
A:Map position: 7L  
C:Keywords: nucleus; RNA binding

Query Match 45.1%; Score 46; DB 2; Length 525;  
Best Local Similarity 53.8%; Pred. No. 67;  
Matches 7; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 3 CCNPNBCHLEHSL 15  
DB 377 CDPNPCRKAHSSL 389

RESULT 11  
B38128  
epithelin/granulin precursor - rat  
C:Species: Rattus norvegicus (Norway rat)  
C:Date: 10-Jul-1992 #sequence\_revision 10-Jul-1992 #text\_change 09-Jul-2004  
C:Accession: B38128; A36199; B36698; I53272  
R:Plowman, G.D.; Green, J.M.; Neubauer, M.G.; Buckley, S.D.; McDonald, V.L.; Todaro, G.J.  
J. Biol. Chem. 267, 13073-13078, 1992  
A:Title: The epithelin precursor encodes two proteins with opposing activities on epithel  
A:Reference number: A38128; MUID:92317004; PMID:1618805  
A:Accession: B38128  
A:Molecule type: mRNA  
A:Residues: 1-589 <PLO>  
A:Cross-references: UNIPROT:P23785; GB:X62322; NID:G56108; PIDN:CAA44198.1; PID:G56109  
R:Shoyab, M.; McDonald, V.L.; Byles, C.; Todaro, G.J.; Plowman, G.D.  
Proc. Natl. Acad. Sci. U.S.A. 87, 7912-7916, 1990  
A:Title: Epithelins 1 and 2: isolation and characterization of two cysteine-rich growth-n  
A:Reference number: A36199; MUID:91045907; PMID:2236009  
A:Accession: A36199  
A:Molecule type: protein  
A:Residues: 280-300 <SHO>  
A:Accession: B36199  
A:Molecule type: protein  
A:Residues: 205-226 <SH2>  
R:Batemán, A.; Belcourt, D.; Bennett, H.; Lazure, C.; Solomon, S.  
Biochem. Biophys. Res. Commun. 173, 1161-1168, 1990  
A:Title: Granulins, a novel class of peptide from leukocytes.  
A:Reference number: A36698; MUID:91097544; PMID:2268320  
A:Accession: E36698  
A:Molecule type: protein  
A:Residues: 279-307, 'SB', 310-324, 'T', 326, 'X', 328, 'Q' <BAT>  
R:Bhandari, V.; Giald, A.; Bateman, A.  
Endocrinology 133, 2682-2689, 1993  
A:Title: The complementary deoxyribonucleic acid sequence, tissue distribution, and cell  
A:Reference number: I53272; MUID:94062640; PMID:8243292

A:Accession: I53272  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-200, 'S', 203-388, 'W', 390-589 <RES>  
A:Cross-references: GB:M97750; NID:g204223; PIDN:AAAL6903.1; PID:g204224  
C:Superfamily: granulin

Query Match 45.1%; Score 46; DB 2; Length 589;  
Best Local Similarity 44.4%; Pred. No. 72;  
Matches 8; Conservative 3; Mismatches 5; Indels 2; Gaps 1;

QY 1 GCCSNPB--CHLEHSLC 16  
||| | : : :  
Db 385 GCCPIPEAVCCLDHQHC 402

RESULT 12  
T24643  
hypotheical protein T07C12.8 - Caenorhabditis elegans  
C:Species: Caenorhabditis elegans  
C>Date: 15-Oct-1999 #sequence\_revision 15-Oct-1999 #text\_change 09-Jul-2004  
C:Accession: T24643  
R:McMurray, A.  
A:Submitted to the EMBL Data Library, June 1996  
A:Reference number: Z19916  
A:Accession: T24643  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: DNA  
A:Residues: 1-1007 <WIL>  
A:Cross-references: UNIPROT:Q22286; EMBL:Z73976; PIDN:CAA98287.1; GSPDB:GN00023; CESP:TO  
A:Experimental source: clone T07C12  
C:Genetics:  
A:Gene: CESP-T07C12.8  
A:Map position: 5  
A:Introns: 137/1; 178/2; 275/1; 295/3; 336/2; 390/1; 747/1; 846/3; 890/1; 953/2

Query Match 45.1%; Score 46; DB 2; Length 1007;  
Best Local Similarity 42.9%; Pred. No. 1.1e+02;  
Matches 6; Conservative 4; Mismatches 4; Indels 0; Gaps 0;

QY 3 CSNPBCHLEHSLC 16  
||| | : : :  
Db 836 CSNVDCNFDDNTLC 849

RESULT 13  
A54877  
alpha-conotoxin PnIA [validated] - cone shell (Conus pennaceus)  
N:Alternate names: alpha-CTX-PnIA  
C:Species: Conus pennaceus  
C>Date: 19-Mar-1997 #sequence\_revision 25-Apr-1997 #text\_change 09-Jul-2004  
C:Accession: A54877  
R:Faiznilber, M.; Hasson, A.; Oren, R.; Burlingame, A.L.; Gordon, D.; Spira, M.E.; Zlotk  
Biochemistry 33, 9523-9529, 1994  
A:Title: New mollusc-specific alpha-conotoxins block Aplysia neuronal acetylcholine rece  
A:Reference number: A54877; MUID:94347719; PMID:8068627  
A:Accession: A54877  
A:Molecule type: protein  
A:Residues: 1-16 <FAI>  
A:Cross-references: UNIPROT:P50984  
R:Hu, S.H.; Gehrmann, J.; Guddat, L.W.; Alewood, P.F.; Craik, D.J.; Martin, J.L.  
submitted to the Brookhaven Protein Data Bank, January 1996  
A:Reference number: A63355; PDB:IPEN  
A:Contents: annotation; X-ray crystallography, 1.1 angstroms; residues 1-16  
C:Comment: This alpha-conotoxin, as an acetylcholine receptor inhibitor, is a postsynapt  
C:Superfamily: alpha-conotoxin  
C:Keywords: acetylcholine receptor inhibitor; amidated carboxyl end; postsynaptic neurot  
F:2-8, 3-16/Disulfide bonds: #status experimental  
F:16/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 44.1%; Score 45; DB 2; Length 16;  
Best Local Similarity 43.8%; Pred. No. 7.7;  
Matches 7; Conservative 2; Mismatches 7; Indels 0; Gaps 0;

QY 1 GCCSNPBCHLEHSLC 16  
||| | : : :  
Db 1 GCCSLPPCAANPDYC 16

## RESULT 14

C64698  
probable histidine-rich metal-binding protein - Helicobacter pylori  
C:Species: Helicobacter pylori  
A:Variety: strains J99, 26695  
C>Date: 09-Aug-1997 #sequence\_revision 09-Aug-1997 #text\_change 09-Jul-2004  
C:Accession: C64698; C71821  
R:Tomb, J.F.; White, O.; Kerlavage, A.R.; Clayton, R.A.; Sutton, G.G.; Fleischmann, R.D.;  
Peterson, S.; Loftus, B.; Richardson, D.; Dodson, R.; Khalak, H.G.; Glodek, A.; McKenney  
son, J.D.; Kelley, J.M.; Cotton, M.D.; Weidman, J.M.; Fujii, C.; Bowman, C.; Watthey, L.  
Nature 388, 539-547, 1997  
A:Authors: Wallin, E.; Hayes, W.S.; Borodovsky, M.; Karpk, P.D.; Smith, H.O.; Fraser, C.A  
A:Title: The complete genome sequence of the gastric pathogen Helicobacter pylori.  
A:Reference number: A64520; MUID:97394467; PMID:9252185  
A:Accession: C64698  
A:Status: nucleic acid sequence not shown; translation not shown  
A:Molecule type: DNA  
A:Residues: 1-60 <TOM>  
A:Cross-references: UNIPROT:Q48251; GB:AE000643; GB:AE000511; NID:g2314598; PIDN:AAD08473  
A:Experimental source: strain 26695  
R:Alm, R.A.; Ling, L.S.L.; Moir, D.T.; King, B.L.; Brown, E.D.; Doig, P.C.; Smith, D.R.;  
Ives, C.; Gibson, R.; Merberg, D.; Mills, S.D.; Jiang, Q.; Taylor, D.E.; Vovis, G.F.; J  
Nature 397, 176-180, 1999  
A:Title: Genomic sequence comparison of two unrelated isolates of the human gastric path  
A:Reference number: A71800; MUID:99120557; PMID:9923682  
A:Accession: C71821  
A:Molecule type: DNA  
A:Residues: 1-60 <ARN>  
A:Cross-references: GB:AE001555; GB:AE001439; NID:g4155929; PIDN:AAD06898.1; PID:g4155933  
A:Experimental source: strain J99  
C:Genetics:  
A:Gene: HP1427; jhp1320

Query Match 44.1%; Score 45; DB 2; Length 60;  
Best Local Similarity 37.5%; Pred. No. 20;  
Matches 6; Conservative 2; Mismatches 8; Indels 0; Gaps 0;

QY 1 GCCSNPBCHLEHSLC 16  
||| | : : :  
Db 40 GCCSTSDSHQEGCC 55

## RESULT 15

T18431  
hypotheical protein C0355c - malaria parasite (Plasmodium falciparum)  
C:Species: Plasmodium falciparum  
C>Date: 15-Oct-1999 #sequence\_revision 15-Oct-1999 #text\_change 09-Jul-2004  
C:Accession: T18431  
R:Lawson, D.; Bowman, S.; Barrell, B.  
submitted to the EMBL Data Library, August 1997  
A:Reference number: Z18935  
A:Accession: T18431  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: DNA  
A:Residues: 1-337 <LAW>  
A:Cross-references: UNIPROT:O77324; EMBL:Z98547; NID:e1325376; PID:e1325383; PIDN:CAB111  
C:Genetics:  
A:Note: C0355c

Query Match 44.1%; Score 45; DB 2; Length 337;  
Best Local Similarity 40.0%; Pred. No. 66;  
Matches 6; Conservative 4; Mismatches 5; Indels 0; Gaps 0;

QY 2 CCSNPBCHLEHSLC 16  
||| | : : :  
Db 21 CCNKKKFHVDNVS LC 35

Search completed: March 22, 2005, 22:54:26  
Job time : 9.9769 secs

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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:45:36 ; Search time 42.7195 Seconds  
(without alignments)  
191.792 Million cell updates/sec

Title: US-09-787-082A-24  
Perfect score: 102  
Sequence: 1 GCCNPBCHLSNLC 16

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : Uniprot 03.\*  
1: uniprot\_sprot.\*  
2: uniprot\_trembl.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	95	93.1	41	1 CXA2_CONMA	P56636 conus magus
2	59	57.8	66	1 CXA2_CONTE	Q9xzk7 conus texti
3	59	57.8	68	2 Q6PTD2	Q6ptd2 conus leopa
4	57	55.9	69	1 CXA1_CONTE	Q9xzk6 conus texti
5	56	54.9	16	1 CXA1_CONEP	P56638 conus episc
6	56	54.9	68	2 Q6PPE0	Q6ppb0 conus miles
7	55	53.9	65	2 Q6PTD1	Q6ptd1 conus marmo
8	55	53.9	67	2 Q6PTD3	Q6ptd3 conus leopa
9	55	53.9	740	2 Q95XU6	Q95xu6 caenorhabdi
10	54	52.9	19	1 CXAD_CONGE	P60274 conus geogr
11	54	52.9	66	2 Q6PPE2	Q6ppb2 conus querc
12	54	52.9	341	2 Q69IG2	Q69lg2 neocallimas
13	53	52.0	61	2 Q9BP56	Q9bp56 conus penna
14	51	50.0	16	1 CXA1_CONAL	P56639 conus aulic
15	51	50.0	199	2 Q49095	Q49095 leavenworth
16	51	50.0	199	2 Q49096	Q49096 leavenworth
17	51	50.0	199	2 Q49097	Q49097 leavenworth
18	51	50.0	199	2 Q49098	Q49098 leavenworth
19	51	50.0	199	2 Q49099	Q49099 leavenworth
20	51	50.0	199	2 Q49100	Q49100 leavenworth
21	51	50.0	199	2 Q49101	Q49101 leavenworth
22	51	50.0	199	2 Q49108	Q49108 leavenworth
23	51	50.0	199	2 Q50045	Q50045 leavenworth
24	51	50.0	199	2 Q7GIA6	Q7gia6 leavenworth
25	51	50.0	199	2 Q7GIC0	Q7gic0 leavenworth
26	51	50.0	223	2 Q49110	Q49110 leavenworth
27	51	50.0	236	2 Q9LD74	Q9ld74 arabidopsis
28	51	50.0	238	2 Q9M4B3	Q9m4b3 arabidopsis
29	51	50.0	281	2 Q49113	Q49113 leavenworth
30	51	50.0	322	2 Q49114	Q49114 leavenworth
31	51	50.0	322	2 Q49115	Q49115 leavenworth

32	51	50.0	338	2	O49109	O49109 leavenworth
33	51	50.0	341	2	Q69IG3	Q69ig3 neocallimas
34	51	50.0	341	2	Q69IG4	Q69ig4 neocallimas
35	51	50.0	341	2	Q69IG6	Q69ig6 neocallimas
36	51	50.0	341	2	Q69IG7	Q69ig7 neocallimas
37	51	50.0	341	2	Q69IG8	Q69ig8 neocallimas
38	51	50.0	341	2	Q69IG9	Q69ig9 neocallimas
39	51	50.0	342	2	Q69IF9	Q69if9 neocallimas
40	51	50.0	350	2	Q9ZWK4	Q9zwk4 brassica ol
41	51	50.0	357	2	Q9M4B2	Q9m4b2 arabidopsis
42	51	50.0	359	2	Q9ZWL0	Q9zwl0 arabis hirs
43	51	50.0	361	2	O9LDM3	O9ldm3 arabidopsis
44	51	50.0	361	2	O9ZWL1	O9zwl1 arabidopsis
45	51	50.0	361	2	Q9ZWL2	Q9zwl2 arabis flag

ALIGNMENTS

RESULT 1  
CXA2\_CONMA  
ID CXA2\_CONMA STANDARD; PRT; 41 AA.  
AC P56636;  
DT 15-DEC-1998 (Rel. 37, Created)  
DT 05-JUL-2004 (Rel. 44, Last sequence update)  
DT 25-OCT-2004 (Rel. 45, Last annotation update)  
DE Alpha-conotoxin MII precursor (M2) (Fragment).  
OS Conus magus (Magus cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=6492;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE=Hepatopancreas;  
RX MEDLINE=22206623; PubMed=12114524; DOI=10.1074/jbc.M205102200;  
RA McIntosh J.M., Dowell C., Watkins M., Garrett J.E., Yoshikami D.,  
RA Olivera B.M.;  
RT "Alpha-conotoxin GIC from Conus geographus, a novel peptide antagonist  
of nicotinic acetylcholine receptors.";  
RL J. Biol. Chem. 277:33610-33615(2002).  
RN [2]  
RP SEQUENCE OF 22-37, AND SYNTHESIS.  
RC TISSUE=Venom;  
RX MEDLINE=96205934; PubMed=8631783; DOI=10.1074/jbc.271.13.7522;  
RA Cartier G.E., Yoshikami D., Gray W.R., Luo S., Olivera B.M.,  
RA McIntosh J.M.;  
RT "A new alpha-conotoxin which targets alpha3beta2 nicotinic  
acetylcholine receptors.";  
RL J. Biol. Chem. 271:7522-7528(1996).  
RN [3]  
RP STRUCTURE BY NMR.  
RX MEDLINE=98062282; PubMed=9398298; DOI=10.1021/bi971443r;  
RA Shon K.-J., Koerber S.C., Rivier J.E., Olivera B.M., McIntosh J.M.;  
RT "Three-dimensional solution structure of alpha-conotoxin MII, an  
alpha3beta2 neuronal nicotinic acetylcholine receptor-targeted  
ligand.";  
RL Biochemistry 36:15693-15700(1997).  
RN [4]  
RP STRUCTURE BY NMR.  
RX MEDLINE=99060038; PubMed=9843366; DOI=10.1021/bi981535w;  
RA Hill J.N., Omen C.J., Miranda L.P., Bingham J.-P., Alewood P.F.,  
RA Craik D.J.;  
RT "Three-dimensional solution structure of alpha-conotoxin MII by NMR  
spectroscopy: effects of solution environment on helicity.";  
RL Biochemistry 37:15621-15630(1998).  
CC -I- FUNCTION: Alpha-conotoxins bind to the nicotinic acetylcholine  
receptors (nAChR) and inhibit them. In contrast to other alpha-  
conotoxins, this peptide has no detectable activity at the muscle  
subtype of receptor, but instead, it potentially targets neuronal  
nAChR. It blocks alpha-3/beta-2 subunits of mammalian nAChR. It  
has an activity 2 to 4 orders of magnitude less potent on other  
nAChR subunit combinations.

CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type family.  
 DR PIR; A59046; A59046.  
 DR PDB; 1M2C; NMR; @=1-16.  
 DR PDB; 1M11; NMR; @=1-16.  
 KW 3D-structure; Acetylcholine receptor inhibitor; Amidation;  
 KW Direct protein sequencing; Neurotoxin; Signal; Toxin.  
 FT NON\_TER 1  
 FT SIGNAL <1 ? Potential.  
 FT PROPEP ? 21  
 FT CHAIN 22 37 Alpha-conotoxin MII.  
 FT DISULFID 23 29  
 FT DISULFID 24 37  
 FT MOD\_RES 37 37  
 FT TURN 23 25  
 FT HELIX 28 32  
 FT TURN 33 37  
 SQ SEQUENCE 41 AA; 4354 MW; 6D2AF235F5A036D CRC64;  
 Query Match 93.1%; Score 95; DB 1; Length 41;  
 Best Local Similarity 93.8%; Pred. No. 1.7e-06;  
 Matches 15; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 GCCSNPBCHELSNLC 16  
 DB 22 GCCSNPVCHELSNLC 37  
 RESULT 2  
 CXAL\_CONTE STANDARD; PRT; 66 AA.  
 ID CXAL2 CONTE  
 AC Q9XZK7  
 DT 16-OCT-2001 (Rel. 40, Created)  
 DT 16-OCT-2001 (Rel. 40, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Alpha-type conotoxin Tx2 precursor.  
 OS Conus textile (Cloth-of-gold cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=6494;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Venom duct;  
 RA MEDLINE=20037955; PubMed=10573284; DOI=10.1016/S0196-9781(99)00116-3;  
 RA Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-F.;  
 RT "Conopeptides from Conus striatus and Conus textile by cDNA cloning."  
 RL Peptides 20:1139-1144(1999).  
 CC -!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they  
 CC bind to the nicotinic acetylcholine receptors (nAChR) and thus  
 CC inhibit them (By similarity).  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type family.  
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 DR EMBL; AF146353; AAD31913.1; --  
 DR InterPro; IPR009958; Toxin\_8.  
 DR Pfam; PF07365; Toxin\_8; 1.  
 KW Acetylcholine receptor inhibitor; Neurotoxin; Postsynaptic neurotoxin;  
 KW Signal; Toxin.  
 FT SIGNAL 1 21 Potential.

FT PROPEP 22 49 By similarity.  
 FT PEPTIDE 50 66 Alpha-type conotoxin Tx2.  
 FT DISULFID 51 57 By similarity.  
 FT DISULFID 52 65 By similarity.  
 SQ SEQUENCE 66 AA; 7254 MW; EDDBS9BBAB94F26F CRC64;  
 Query Match 57.8%; Score 59; DB 1; Length 66;  
 Best Local Similarity 46.7%; Pred. No. 0.38;  
 Matches 7; Conservative 5; Mismatches 3; Indels 0; Gaps 0;  
 QY 2 CCSNPBCHELSNLC 16  
 DB 51 CCSPACNVDRHPEIC 65  
 RESULT 3  
 Q6PTD2 PRELIMINARY; PRT; 68 AA.  
 ID Q6PTD2  
 AC Q6PTD2;  
 DT 05-JUL-2004 (TRENDEL. 27, Created)  
 DT 05-JUL-2004 (TRENDEL. 27, Last sequence update)  
 DT 05-JUL-2004 (TRENDEL. 27, Last annotation update)  
 DE Alpha conotoxin lpi.4.  
 OS Conus leopardus.  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101306;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Jiang H., Han Y.H., Wang Q., Chen J.S., Chi C.W.;  
 RL Submitted (MAR-2004) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AY580324; AAS93427.1; --  
 DR InterPro; IPR009958; Toxin\_8.  
 DR Pfam; PF07365; Toxin\_8; 1.  
 SQ SEQUENCE 68 AA; 7352 MW; 33B83A064F3B3A37 CRC64;  
 Query Match 57.8%; Score 59; DB 2; Length 68;  
 Best Local Similarity 56.2%; Pred. No. 0.39;  
 Matches 9; Conservative 1; Mismatches 6; Indels 0; Gaps 0;  
 QY 1 GCCSNPBCHELSNLC 16  
 DB 49 GCCSPACSGNHQELC 64  
 RESULT 4  
 CXAL\_CONTE STANDARD; PRT; 69 AA.  
 ID CXAL CONTE  
 AC Q9XZK6  
 DT 16-OCT-2001 (Rel. 40, Created)  
 DT 16-OCT-2001 (Rel. 40, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Alpha-type conotoxin Tx1 precursor.  
 OS Conus textile (Cloth-of-gold cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=6494;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Venom duct;  
 RA MEDLINE=20037955; PubMed=10573284; DOI=10.1016/S0196-9781(99)00116-3;  
 RA Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-F.;  
 RT "Conopeptides from Conus striatus and Conus textile by cDNA cloning."  
 RL Peptides 20:1139-1144(1999).  
 CC -!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they  
 CC bind to the nicotinic acetylcholine receptors (nAChR) and thus  
 CC inhibit them (By similarity).  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type family.



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 CC or send an email to license@isb-sib.ch).  
 CC -----  
 DR EMBL; AF146352; AAD31912.1; -  
 DR InterPro; IPR009958; Toxin\_8.  
 DR Pfam; PF07365; Toxin\_8; 1.  
 KW Acetylcholine receptor inhibitor; Amidation; Neurotoxin;  
 KW Postsynaptic neurotoxin; Signal; Toxin.  
 FT SIGNAL 1 21 Potential.  
 FT PROPEP 22 49 By similarity.  
 FT PEPTIDE 50 66 Alpha-type conotoxin Tx1.  
 FT DISULFID 51 57 By similarity.  
 FT DISULFID 52 65 By similarity.  
 FT MOD\_RES 66 66 Glycine amide (G-67 provides amide group).  
 FT SQ SEQUENCE 69 AA; 7442 MW; E36CE908F1B56B0 CRC64;  
 Query Match 55.9%; Score 57; DB 1; Length 69;  
 Best Local Similarity 53.3%; Pred. No. 0.76;  
 Matches 8; Conservative 2; Mismatches 5; Indels 0; Gaps 0;  
 QY 2 CCSPNPECHLEHSLNC 16  
 DB 51 CCSDPRCNSHPCLC 65  
 |||||:|:|:|  
 RESULT 5  
 CXAL\_CONEP STANDARD; PRT; 16 AA.  
 ID CXAL CONEP  
 AC P56638;  
 DT 15-DEC-1998 (Rel. 37, Created)  
 DT 15-DEC-1998 (Rel. 37, Last sequence update)  
 DT 25-OCT-2004 (Rel. 45, Last annotation update)  
 DE Alpha-conotoxin Epi.  
 OS Conus episcopatus (Bishop's cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=88764;  
 RN [1]  
 RP X-RAY CRYSTALLOGRAPHY (1.1 ANGSTROMS).  
 RX MEDLINE=98376423; PubMed=9708977; DOI=10.1021/bi9806549;  
 RA Hu S.H., Loughnan M., Miller R., Weeks C.M., Blessing R.H.,  
 RA Alewood P.F., Lewis R.J., Martin J.L.;  
 RT "The 1.1-A resolution crystal structure of [Tyr15]Epi, a novel alpha-  
 RL Biochemistry 37:11425-11433(1998).  
 CC -!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they  
 CC bind to the nicotinic acetylcholine receptors (nAChR) and thus  
 CC inhibit them. This peptide blocks mammalian nicotinic  
 CC acetylcholine receptors composed of alpha-3/beta-2 and alpha-  
 CC 3/beta-4 subunits.  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type  
 CC family.  
 DR PIR; A59042;  
 DR PDB; 1A0M; X-ray; A/Bs1-16.  
 KW 3D-structure; Acetylcholine receptor inhibitor; Amidation; Neurotoxin;  
 KW Postsynaptic neurotoxin; Sulfation; Toxin.  
 FT DISULFID 2 8  
 FT DISULFID 3 16  
 FT MOD\_RES 15 15 Sulfotyrosine.  
 FT MOD\_RES 16 16 Cysteine amide.  
 FT HELIX 2 4  
 FT HELIX 6 11  
 FT TURN 13 16

SQ SEQUENCE 16 AA; 1792 MW; C63385F376C99B4C CRC64;  
 Query Match 54.9%; Score 56; DB 1; Length 16;  
 Best Local Similarity 43.8%; Pred. No. 0.27;  
 Matches 7; Conservative 5; Mismatches 4; Indels 0; Gaps 0;  
 QY 1 GCCSNPBCHLEHSLNC 16  
 DB 1 GCCSDPRCNSHPCLC 16  
 |||||:|:|:|  
 RESULT 6  
 Q6PPB0 PRELIMINARY; PRT; 68 AA.  
 ID Q6PPB0  
 AC Q6PPB0;  
 DT 05-JUL-2004 (TREMELrel. 27, Created)  
 DT 05-JUL-2004 (TREMELrel. 27, Last sequence update)  
 DT 05-JUL-2004 (TREMELrel. 27, Last annotation update)  
 DE Alpha conotoxin M1.1.  
 OS Conus miles.  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=69564;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Han Y.H., Wang Q., Jiang H., Chen J.S., Qi C.W.;  
 RL Submitted (APR-2004) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AY588975; AAS99935.1; -  
 DR InterPro; IPR009958; Toxin\_8.  
 DR Pfam; PF07365; Toxin\_8; 1.  
 DR SQ SEQUENCE 68 AA; 7296 MW; 31C166F007FC1439 CRC64;  
 Query Match 54.9%; Score 56; DB 2; Length 68;  
 Best Local Similarity 50.0%; Pred. No. 1;  
 Matches 8; Conservative 2; Mismatches 6; Indels 0; Gaps 0;  
 QY 1 GCCSNPBCHLEHSLNC 16  
 DB 49 GCCSNPPCYANNQAYC 64  
 |||||:|:|:|  
 RESULT 7  
 Q6PTD1 PRELIMINARY; PRT; 65 AA.  
 ID Q6PTD1  
 AC Q6PTD1;  
 DT 05-JUL-2004 (TREMELrel. 27, Created)  
 DT 05-JUL-2004 (TREMELrel. 27, Last sequence update)  
 DT 05-JUL-2004 (TREMELrel. 27, Last annotation update)  
 DE Alpha conotoxin M1.1.  
 OS Conus marmoreus (Marble cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=42752;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Wang Q., Jiang H., Han Y.H., Chen J.S., Chi C.W.;  
 RL Submitted (MAR-2004) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AY580325; AAS93428.1; -  
 DR HSSP; P56638; 1A0M.  
 DR InterPro; IPR009958; Toxin\_8.  
 DR Pfam; PF07365; Toxin\_8; 1.  
 DR SQ SEQUENCE 65 AA; 6810 MW; 31ECF5763F599134 CRC64;  
 Query Match 53.9%; Score 55; DB 2; Length 65;  
 Best Local Similarity 43.8%; Pred. No. 1.4;  
 Matches 7; Conservative 5; Mismatches 4; Indels 0; Gaps 0;  
 QY 1 GCCSNPBCHLEHSLNC 16  
 DB 49 GCCSHPACSVNNPDIC 64  
 |||||:|:|:|

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RESULT 8
Q6PTD3 ID Q6PTD3 PRELIMINARY; PRT; 67 AA.
AC Q6PTD3;
DT 05-JUL-2004 (TREMELrel. 27, Created)
DT 05-JUL-2004 (TREMELrel. 27, Last sequence update)
DT 05-JUL-2004 (TREMELrel. 27, Last annotation update)
DE Alpha conotoxin 1p1.3.
OS Conus leopardus.
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=101306;
RN [1]
RP SEQUENCE FROM N.A.
RA Jiang H., Han Y.H., Wang Q., Chen J.S., Chi C.W.;
RL Submitted (MAR-2004) to the EMBL/GenBank/DDBJ databases.
DR EMBL; AY580323; AAS93426.1; -.
DR InterPro: IPR009958; Toxin_8.
DR Pfam; PF07365; Toxin_8; 1.
SQ SEQUENCE 67 AA; 7149 MW; EBCD98360CF7D34 CRC64;
Query Match 53.9%; Score 55; DB 2; Length 67;
Best Local Similarity 53.3%; Pred. No. 1.4;
Matches 8; Conservative 1; Mismatches 6; Indels 0; Gaps 0;

QY 2 CCSPNFBCHLEHSNLC 16
Db ||||| | | | | |
49 CCSPNACGAGHPHC 63

RESULT 9
Q95XU6 ID Q95XU6 PRELIMINARY; PRT; 740 AA.
AC Q95XU6;
DT 01-DEC-2001 (TREMELrel. 19, Created)
DT 01-OCT-2002 (TREMELrel. 22, Last sequence update)
DT 01-WAR-2004 (TREMELrel. 26, Last annotation update)
DE Hypothetical protein Y61A9LA.8.
GN Name=Y61A9LA.8; ORFNames=Y61A9LA.8;
OS Caenorhabditis elegans.
OC Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidae;
OC Rhabditidae; Peloderinae; Caenorhabditis.
OX NCBI_TaxID=6239;
RN [1]
RP SEQUENCE FROM N.A.
RA STRAIN=Bristol N2;
RX MEDLINE=99069613; PubMed=9851916;
RG WormBase Consortium;
RT "Genome sequence of the nematode C. elegans: a platform for
investigating biology. The C. elegans Sequencing Consortium.";
RL Science 282:2012-2018(1998).
RN [2]
RP SEQUENCE FROM N.A.
RA STRAIN=Bristol N2;
RA Ali J., Dempsey S.;
RT "The sequence of C. elegans cosmid Y61A9LA.";
RL Submitted (MAR-2000) to the EMBL/GenBank/DDBJ databases.
RN [3]
RP SEQUENCE FROM N.A.
RA STRAIN=Bristol N2;
RA Waterston R.H.;
RL Submitted (MAR-2000) to the EMBL/GenBank/DDBJ databases.
RN [4]
RP SEQUENCE FROM N.A.
RA STRAIN=Bristol N2;
RA Waterston R.;
RL Submitted (MAR-2000) to the EMBL/GenBank/DDBJ databases.
RN [5]
RP SEQUENCE FROM N.A.
RA STRAIN=Bristol N2;
RA Waterston R.;

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RL Submitted (JUL-2001) to the EMBL/GenBank/DDBJ databases.
RN [6]
RP SEQUENCE FROM N.A.
RC STRAIN=Bristol N2;
RA Waterston R.;
RL Submitted (SEP-2001) to the EMBL/GenBank/DDBJ databases.
RN [7]
RP SEQUENCE FROM N.A.
RC STRAIN=Bristol N2;
RA Waterston R.;
RL Submitted (NOV-2001) to the EMBL/GenBank/DDBJ databases.
RN [8]
RP SEQUENCE FROM N.A.
RC STRAIN=Bristol N2;
RA Waterston R.;
RL Submitted (MAY-2002) to the EMBL/GenBank/DDBJ databases.
RN [9]
RP SEQUENCE FROM N.A.
RC STRAIN=Bristol N2;
RA Waterston R.;
RL Submitted (JUN-2002) to the EMBL/GenBank/DDBJ databases.
RN [10]
RP SEQUENCE FROM N.A.
RC STRAIN=Bristol N2;
RA Waterston R.;
RL Submitted (NOV-2002) to the EMBL/GenBank/DDBJ databases.
RN [11]
RP SEQUENCE FROM N.A.
RC STRAIN=Bristol N2;
RA Wilson R.;
RL Submitted (NOV-2003) to the EMBL/GenBank/DDBJ databases.
RN [12]
RP SEQUENCE FROM N.A.
RC STRAIN=Bristol N2;
RA Wilson R.;
RL Submitted (DEC-2003) to the EMBL/GenBank/DDBJ databases.
RN [13]
RP SEQUENCE FROM N.A.
RC STRAIN=Bristol N2;
RA Wilson R.;
RL Submitted (JUL-2004) to the EMBL/GenBank/DDBJ databases.
RN [14]
RP SEQUENCE FROM N.A.
RC STRAIN=Bristol N2;
RG WormBase Consortium;
RL Submitted (SEP-2004) to the EMBL/GenBank/DDBJ databases.
DR EMBL; AC024843; AAK70666.3; -.
DR WormPep; Y61A9LA.8; CE31123.
DR GO; GO:0003676; F:nucleic acid binding; IEA.
DR InterPro: IPR000571; Znf.CCCH.
DR Pfam; PF06642; Zf.CCCH; 3.
DR SMART; SM00356; Znf.C3H1; 3.
KW Hypothetical protein.
SQ SEQUENCE 740 AA; 82853 MW; F3B8A5C873C58A6D CRC64;
Query Match 53.9%; Score 55; DB 2; Length 740;
Best Local Similarity 50.0%; Pred. No. 13;
Matches 8; Conservative 1; Mismatches 7; Indels 0; Gaps 0;

QY 1 GCSPNFBCHLEHSNLC 16
Db ||||| | | | | |
678 GACRNPICFKPKKC 693

RESULT 10
CXAD CONGE STANDARD; PRT; 19 AA.
AC P60274;
DT 29-MAR-2004 (Rel. 43, Created)
DT 29-MAR-2004 (Rel. 43, Last sequence update)
DT 25-OCT-2004 (Rel. 45, Last annotation update)
DE Alpha-conotoxin GID.

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OS Conus geographus (Geography cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=6491;  
 RN [1]  
 RP SEQUENCE, STRUCTURE BY NMR, SYNTHESIS, MASS SPECTROMETRY, AND  
 RP MUTAGENESIS OF ARG-12.  
 RC TISSUE=Venom;  
 RX PubMed=12419800; DOI=10.1074/jbc.M210280200;  
 RA Nicke A., Loughnan M.L., Millard E.L., Alewood P.F., Adams D.J.,  
 RA Daly N.L., Craik D.J., Lewis R.J.;  
 RT "Isolation, structure, and activity of GID, a novel alpha 4/7-  
 RT conotoxin with an extended N-terminal sequence.";  
 RL J. Biol. Chem. 278:3137-3144(2003).  
 CC -!- FUNCTION: Alpha-conotoxins act on postsynaptic membranes, they  
 CC bind to the nicotinic acetylcholine receptors (nAChR) and thus  
 CC inhibit them. This peptide reversibly inhibits alpha-7, alpha-  
 CC 3/beta-2, and alpha-4/beta-2 subunits.  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -!- MASS SPECTROMETRY: MW=2184.9; RANGE=1-19; NOTE=Ref.1.  
 CC -!- SIMILARITY: Belongs to the conotoxin A-superfamily. Alpha-type  
 CC family.  
 CC PDB: 1WTQ; NMR: --  
 DR 3D-structure; Acetylcholine receptor inhibitor;  
 KW Direct protein sequencing; Gamma-carboxyglutamic acid; Hydroxylation;  
 KW Neurotoxin; Postsynaptic neurotoxin; Toxin; Vitamin K.  
 FT DISULFID 5 11  
 FT DISULFID 6 19 4-carboxyglutamate.  
 FT MOD\_RES 4 4 4-hydroxyproline.  
 FT MOD\_RES 16 16 R->A: 10-fold reduction of activity.  
 FT MUTAGEN 12 12 Missing: 4-fold reduction of activity at  
 FT MUTAGEN 1 4 alpha-4/beta-2 subunit, no reduction of  
 FT activity at alpha-7 and alpha-3/beta-2  
 FT subunits.  
 FT SEQUENCE 19 AA; 2130 MW; 0D14E58724C98F0E CRC64;  
 SQ  
 Query Match 52.9%; Score 54; DB 1; Length 19;  
 Best Local Similarity 46.7%; Pred. No. 0.61;  
 Matches 7; Conservative 4; Mismatches 4; Indels 0; Gaps 0;  
 OY 2 CCNPNBCHLEHNSLC 16  
 DB [|||||:] : : : :  
 5 CCNPNACRYNPHVC 19  
 RESULT 11  
 Q6PPB2 PRELIMINARY; PRT; 66 AA.  
 AC Q6PPB2;  
 DT 05-JUL-2004 (TREMELrel. 27, Created)  
 DT 05-JUL-2004 (TREMELrel. 27, Last sequence update)  
 DT 05-JUL-2004 (TREMELrel. 27, Last annotation update)  
 DE Alpha conotoxin QCl.4.  
 OS Conus quercinus (Oak cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101313;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Han Y.H., Wang Q., Jiang H., Chen J.S., Qi C.W.;  
 RL Submitted (APR-2004) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AY589973; AAS99933.1; --  
 DR HSSP; P56638; IAGM.  
 DR InterPro; IPR009958; Toxin\_8.  
 DR Pfam; PF07365; Toxin\_8; 1.  
 DR SEQUENCE 66 AA; 6905 MW; C49786F54DFF8652 CRC64;  
 SQ  
 Query Match 52.9%; Score 54; DB 2; Length 66;  
 Best Local Similarity 43.8%; Pred. No. 1.9;  
 Matches 7; Conservative 4; Mismatches 4; Indels 0; Gaps 0;

Matches 7; Conservative 5; Mismatches 4; Indels 0; Gaps 0;  
 OY 1 GCCSNPBCHEHNSLC 16  
 DB [|||||:] : : : :  
 47 GCCSDPACAVSNPDIC 62  
 RESULT 12  
 Q69IG2 PRELIMINARY; PRT; 341 AA.  
 AC Q69IG2;  
 DT 25-OCT-2004 (TREMELrel. 28, Created)  
 DT 25-OCT-2004 (TREMELrel. 28, Last sequence update)  
 DT 25-OCT-2004 (TREMELrel. 28, Last annotation update)  
 DE Xylanase xynsk1-18 (Fragment).  
 OS Neocallimastix frontalis (Rumen fungus).  
 OC Eukaryota; Fungi; Chytridiomycota; Neocallimasticales;  
 OC Neocallimastixaceae; Neocallimastix.  
 OX NCBI\_TaxID=4757;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Huang Y.-H., Hsueh R.-S.;  
 RL "Neocallimastix frontalis xylanase DNA sequence.";  
 RT Submitted (JUL-2002) to the EMBL/GenBank/DBJ databases.  
 CC -!- CATALYTIC ACTIVITY: Endohydrolysis of 1,4-beta-D-xylosidic  
 CC linkages in xylans.  
 CC -!- PATHWAY: Xylan degradation.  
 CC -!- SIMILARITY: Belongs to cellulase family G (family 11 of glycosyl  
 CC hydrolases).  
 DR EMBL; AY134030; AAN08428.1; --  
 DR GO; GO:0004553; F:hydrolase activity, hydrolyzing O-glycosyl . . . ; IEA.  
 DR GO; GO:0005975; P:carbohydrate metabolism; IEA.  
 DR InterPro; IPR008985; ConA\_like lec gl.  
 DR InterPro; IPR009034; Dockering CDD.  
 DR InterPro; IPR002883; Dockerin CBD 5.  
 DR InterPro; IPR001137; Glyco\_hydro\_11.  
 DR Pfam; PF02013; CBM\_10; 2.  
 DR Pfam; PF00457; Glyco\_hydro\_11; 1.  
 DR PRINTS; PRO0911; GLHYDRLASE11.  
 DR PROSITE; PS00776; GLYCOSYL\_HYDROL\_F11\_1; 1.  
 DR PROSITE; PS00777; GLYCOSYL\_HYDROL\_F11\_2; 1.  
 KW Glycosidase; Hydrolase; Xylan degradation.  
 FT NON\_TER 1 1  
 FT NON\_TER 341 341  
 SQ SEQUENCE 341 AA; 37226 MW; E074D7CF3D84DD7B CRC64;  
 Query Match 52.9%; Score 54; DB 2; Length 341;  
 Best Local Similarity 53.8%; Pred. No. 8.9;  
 Matches 7; Conservative 4; Mismatches 2; Indels 0; Gaps 0;  
 OY 2 CCNPNBCHLEHNS 14  
 DB [|||||:] : : : :  
 280 CCNPNCEIVYSD 292  
 RESULT 13  
 Q9BP56 PRELIMINARY; PRT; 61 AA.  
 AC Q9BP56;  
 DT 01-JUN-2001 (TREMELrel. 17, Created)  
 DT 01-JUN-2001 (TREMELrel. 17, Last sequence update)  
 DT 01-MAR-2004 (TREMELrel. 26, Last annotation update)  
 DE Conotoxin scaffold 1.  
 OS Conus pennaceus (Feathered cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=37335;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA MEDLINE=21105969; PubMed=11158371;  
 RA Conticello S.G., Gilad Y., Avidan N., Ben-Asher E., Levy Z.,  
 RA Fainzilber M.;

RESULT 15  
O49095 ID O49095 PRELIMINARY; PRT; 199 AA.  
AC O49095;  
DT 01-JUN-1998 (T=EMBLrel. 06, Created)  
DT 01-JUN-1998 (T=EMBLrel. 06, Last sequence update)

Search completed: March 23, 2005, 00:16:49  
Job time : 42.7195 secs

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:44:17 ; Search time 93.7954 Seconds  
(without alignments)  
119.580 Million cell updates/sec

Title: US-09-787-082A-15  
Perfect score: 163  
Sequence: 1 CKSXTXCSRGRDCTCLLYSNKRRY 29

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : A\_Geneseq\_16Dec04:\*

- 1: Geneseqp1980s:\*
- 2: Geneseqp1990s:\*
- 3: Geneseqp2000s:\*
- 4: Geneseqp2001s:\*
- 5: Geneseqp2002s:\*
- 6: Geneseqp2003as:\*
- 7: Geneseqp2003bs:\*
- 8: Geneseqp2004s:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	159	97.5	29	2 AAR32780	AAR32780 GVIIA ome
2	159	97.5	29	2 AAW12970	Aaw12970 Omega con
3	159	97.5	29	3 AAY56476	Aay56476 Natural o
4	157	96.3	29	2 AAR39611	Aar39611 GVIIA/SNX
5	157	96.3	29	2 AAW19547	Aaw19547 Natural o
6	157	96.3	29	2 AAW72608	Aaw72608 Conus gen
7	157	96.3	29	2 AAW95567	Aaw95567 Omega-con
8	157	96.3	29	2 AAY42338	Aay42338 Omega-con
9	157	96.3	29	3 AAB14355	Aab14355 Omega-con
10	157	96.3	29	4 AAB19445	Aab19445 Primary s
11	157	96.3	29	5 AAO15123	Aao15123 Cone snai
12	157	96.3	30	2 AAR37755	Aar37755 GVIIA/SNX
13	157	96.3	55	5 ABB96643	Abb96643 Omega-con
14	152	93.3	29	5 ABB96849	Abb96849 Omega-con
15	152	93.3	74	5 ABB96641	Abb96641 Omega-con
16	150	92.0	29	2 AAR76092	Aar76092 Omega con
17	144	88.3	29	5 ABB96748	Abb96748 Omega-con
18	140	85.9	29	5 ABB96744	Abb96744 Omega-con
19	138	84.7	29	5 ABB96749	Abb96749 Omega-con
20	93	57.1	29	5 ABB96752	Abb96752 Omega-con
21	92	56.4	29	5 ABB96860	Abb96860 Omega-con
22	92	56.4	30	5 ABB96850	Abb96850 Omega-con
23	92	56.4	75	5 ABB96646	Abb96646 Omega-con
24	92	56.4	76	5 ABB96595	Abb96595 Omega-con
25	91	55.8	27	2 AAW12986	Aaw12986 Omega con

26	91	55.8	27	3 AAY56497	Aay56497 Analogue
27	91	55.8	27	3 AAB14371	Aab14371 Omega-con
28	89	54.6	27	2 AAW12996	Aaw12996 Omega con
29	89	54.6	27	2 AAW72627	Aaw72627 Conus gen
30	89	54.6	27	3 AAY56498	Aay56498 Analogue
31	89	54.6	27	3 AAB14378	Aab14378 Omega-con
32	89	54.6	27	4 AAB19464	Aab19464 Sequence
33	88	54.0	27	2 AAR39630	Aar39630 SNX-236.
34	88	54.0	27	2 AAR39629	Aar39629 SNX-207.
35	88	54.0	27	2 AAR37776	Aar37776 SNX-236.
36	88	54.0	27	2 AAR37775	Aar37775 SNX-207.
37	88	54.0	27	2 AAW19572	Aaw19572 SNX-236.
38	88	54.0	27	2 AAW72626	Aaw72626 Conus gen
39	88	54.0	27	2 AAW95585	Aaw95585 Analog om
40	88	54.0	27	2 AAW95586	Aaw95586 Analog om
41	88	54.0	27	4 AAB19463	Aab19463 Sequence
42	86	52.8	27	2 AAW19571	Aaw19571 SNX-207.
43	85	52.1	30	5 ABB96698	Abb96698 Omega-con
44	84.5	51.8	27	5 ABB96842	Abb96842 Omega-con
45	84.5	51.8	73	5 ABB96626	Abb96626 Omega-con

ALIGNMENTS

RESULT 1  
AAR32780  
ID AAR32780 standard; peptide; 29 AA.

XX AAR32780;  
AC AAR32780;  
DT 28-JUN-1993 (first entry)  
DE GVIIA omega conotoxin peptide.  
KW OCT; neuronal damage reduction; ischemia; secondary damage; stroke.  
OS Synthetic.  
PN US5189020-A.  
PD 23-FEB-1993.  
PF 02-AUG-1990; 90US-00561766.  
PR 22-NOV-1989; 89US-00440094.  
PA (NEUR-) NEUREX CORP.

XX Miljanich GP, Bitner RS, Bowersox SS, Fox JA, Valentino KL;  
XX Yamashiro DH, Taubokawa M;  
XX WPI; 1993-085564/10.  
XX Reducing neuronal damage due to ischaemia - involves using omega  
XX conotoxin peptide or fragment.  
XX Disclosure; Fig 1; 32pp; English.

XX The sequence is that of the GVIIA omega conotoxin (OCT) peptide which can  
XX bind to an OCT binding protein, inhibit voltage-gated calcium currents  
XX selectively in neuronal tissue and inhibit neuronal transmitter release  
XX selectively in neuronal tissue. These properties all occur within the  
XX range of those of WPIIB, GVIIA, RVIA, or pref. WPIIA and GVIA OCTs. The  
XX peptide can be used in reducing or preventing both anatomical and  
XX functional secondary damage related to ischemia, generally as associated  
XX with stroke

XX Sequence 29 AA;

XX Query Match 97.5%; Score 159; DB 2; Length 29;  
XX Best Local Similarity 100.0%; Pred. No. 1.1e-11;  
XX Matches 29; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKSXGTXCSRGWRDCTCLLYSNKCRRY 29  
 DB 1 CKSXGTXCSRGWRDCTCLLYSNKCRRY 29

RESULT 2  
 AA12970  
 ID AAW12970 standard; peptide; 29 AA.  
 AC AAW12970;  
 XX  
 XX  
 DT 25-MAR-2003 (revised)  
 DT 22-APR-1997 (first entry)  
 XX  
 XX Omega conopeptide SNX-178.  
 XX  
 XX Omega conopeptide; analgesic; treatment; neuropathic pain; inhibition;  
 KW neuronal damage; schizophrenia; tardive dyskinesia; analgesia;  
 KW acute dystonic reactions; inflammation; epilepsy.  
 XX  
 OS Synthetic.  
 XX  
 XX Key Location/Qualifiers  
 FT Modified-site 4  
 FT Modified-site 7 /label= Hyp  
 FT Modified-site 7 /label= Hyp  
 FT  
 XX US5587454-A.  
 PN  
 XX  
 PD 24-DEC-1996.  
 XX  
 XX 15-APR-1993; 93US-00049794.  
 XX  
 XX 30-DEC-1991; 91US-00814759.  
 PR 30-DEC-1992; 92WO-US011349.  
 XX  
 XX (NEUR-) NEUREX CORP.  
 PA  
 XX  
 XX Gohil KC, Miljanich GP, Valentino KL, Justice A, Singh T;  
 PI WPI; 1997-064830/06.  
 DR  
 XX Omega conopeptide(s) - useful as analgesics, esp. for treating  
 PT neuropathic pain.  
 PT  
 XX Disclosure; Col 43-44; 58pp; English.  
 XX  
 XX The present peptide is an omega conopeptide, useful as an analgesic,  
 CC especially for treating neuropathic pain. The peptide, which can be  
 CC prepared by solid phase synthesis, can also be used to inhibit neuronal  
 CC damage and treat schizophrenia, tardive dyskinesia, acute dystonic  
 CC reactions, inflammation and epilepsy. (Updated on 25-MAR-2003 to correct  
 CC PF field.)  
 XX  
 XX Sequence 29 AA;  
 SQ

Query Match 97.5%; Score 159; DB 2; Length 29;  
 Best Local Similarity 100.0%; Pred. No. 1.1e-11;  
 Matches 29; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKSXGTXCSRGWRDCTCLLYSNKCRRY 29  
 DB 1 CKSXGTXCSRGWRDCTCLLYSNKCRRY 29

RESULT 3  
 AAY56476  
 ID AAY56476 standard; peptide; 29 AA.  
 XX  
 AC AAY56476;  
 XX

DT 16-FEB-2000 (first entry)  
 XX Natural omega conopeptide GVIIB/SNX-178.  
 XX  
 KW Omega conopeptide; analgesic; nociceptive; neuropathic; pain; conotoxin;  
 KW marine snail; peptide toxin; inflammation; binding;  
 KW voltage-gated calcium channel; inhibition; norepinephrine; noradrenaline;  
 KW anti-inflammatory.  
 XX  
 OS Conus sp.  
 XX  
 XX Key Location/Qualifiers  
 FH Misc-difference 4  
 FT Misc-difference 7 /note= "unspecified"  
 FT Misc-difference 7 /note= "unspecified"  
 FT  
 XX US5994305-A.  
 PN  
 XX 30-NOV-1999.  
 PD  
 XX 21-AUG-1998; 98US-00138439.  
 XX  
 XX 30-DEC-1991; 91US-00814759.  
 PR 15-APR-1993; 93US-00049794.  
 PR 03-JUL-1996; 96US-00675354.  
 PR 01-NOV-1996; 96US-00742774.  
 XX  
 XX (ELAN-) ELAN PHARM INC.  
 PA  
 XX  
 XX Justice A, Singh T, Valentino KL, Miljanich GP, Gohil KC;  
 PI WPI; 2000-038270/03.  
 DR  
 XX Measuring the activity of test compounds in blocking voltage-gated  
 PT calcium channels, binding to the omega conopeptide binding site and  
 PT inhibiting norepinephrine (noradrenaline) release for treating  
 PT inflammation.  
 XX  
 XX Disclosure; Fig 1; 47pp; English.  
 PS  
 XX A method has been developed of selecting a test compound for treating  
 CC inflammation. The method comprises measuring the activity of the test  
 CC compound in blocking voltage-gated calcium channels, binding to the omega  
 CC conopeptide binding site and inhibiting norepinephrine (noradrenaline)  
 CC release from nervous tissue. The method is useful for selecting compounds  
 CC for treating inflammation. The selected compounds are capable of  
 CC producing analgesia in a mammalian subject with chronic or intractable  
 CC pain. Analgesia caused by selected compounds may reduce the reliance on  
 CC opioid analgesic agents of the prior art which cause dependency and  
 CC tolerance, requiring potentially dangerous increases in opioid doses to  
 CC achieve the analgesic effect. The present sequence represents an omega  
 CC conopeptide given in the present invention  
 XX  
 XX Sequence 29 AA;  
 SQ

Query Match 97.5%; Score 159; DB 3; Length 29;  
 Best Local Similarity 100.0%; Pred. No. 1.1e-11;  
 Matches 29; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKSXGTXCSRGWRDCTCLLYSNKCRRY 29  
 DB 1 CKSXGTXCSRGWRDCTCLLYSNKCRRY 29

RESULT 4  
 AAR39611  
 ID AAR39611 standard; peptide; 29 AA.  
 XX  
 AC AAR39611;  
 XX  
 DT 25-MAR-2003 (revised)  
 DT 20-DEC-1993 (first entry)



KW inflammation; schizophrenia; tardive dyskinesia; acute dystonic reaction;  
 XX rheumatoid arthritis; epilepsy.

OS Conus.

XX Key Location/Qualifiers  
 FT Modified-site 4 /label= Hyp  
 FT /note= "hydroxyproline"  
 FT Modified-site 7  
 FT /label= Hyp  
 FT /note= "hydroxyproline"

XX US5824645-A.

XX 20-OCT-1998.

XX 01-NOV-1996; 96US-00742774.

XX 30-DEC-1991; 91US-00814759.

XX 15-APR-1993; 93US-00049794.

XX 03-JUL-1996; 96US-00675354.

XX (NEUR-) NEUREX CORP.

XX Miljanich GP, Valentino KL, Gohil KC, Justice A, Singh T;

XX WPI; 1998-582596/49.

XX Treatment of inflammation, comprises administration of omega-conopeptide  
 PT - effective to block voltage-gated calcium channels, bind with high  
 PT affinity to omega-conopeptide binding site, and inhibit neuro-transmitter  
 PT release.

XX Disclosure; Fig 1; 58pp; English.

XX A method has been developed for the treatment of inflammation in a  
 CC subject. The method comprises administration of an omega-conopeptide  
 CC effective to: (i) block voltage-gated calcium channels; (ii) bind with  
 CC high affinity to an omega-conopeptide binding site; and (iii) inhibit  
 CC neurotransmitter release from nervous tissue. The method is used to treat  
 CC inflammation and associated pain. The treatment can also be used to  
 CC produce analgesia (especially in subjects experiencing neuropathic pain);  
 CC and to treat schizophrenia, tardive dyskinesia and acute dystonic  
 CC reactions, rheumatoid arthritis, and epilepsy. The present sequence  
 CC represents a natural omega-conopeptide. Omega-conopeptides are components  
 CC of peptide toxins produced by marine snails of the genus Conus, and which  
 CC act as calcium channel blockers. (Updated on 27-AUG-2003 to correct OS  
 CC field.)

XX Sequence 29 AA;

Query Match 96.3%; Score 157; DB 2; Length 29;  
 Best Local Similarity 93.1%; Pred. No. 1.9e-11;  
 Matches 27; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CKSXGTGCSRGMRDCTCTSLLYSNKCRRY 29  
 DB 1 CKSPGTPCSRGMRDCTCTSLLYSNKCRRY 29

RESULT 7

AAW95567  
 ID AAW95567 standard; protein; 29 AA.

XX AAW95567;

XX 29-MAR-1999 (first entry)

XX Omega-conopeptide GVTA/SNX-178.

XX Omega-conopeptide; peptide toxin; snail; calcium channel blocker;  
 KW analgesia; guinea pig ileum; omega-conotoxin; pain; neuropathic.

XX Synthetic.  
 OS Conus sp.  
 XX Key Location/Qualifiers  
 FT Modified-site 4 /label= 4Hyp  
 FT /note= "4-Hydroxyproline"  
 FT Modified-site 7  
 FT /label= 4Hyp  
 FT /note= "4-Hydroxyproline"  
 FT Modified-site 29  
 FT /note= "C-terminal amide"

XX US5859186-A.

XX 12-JAN-1999.

XX 03-JUL-1996; 96US-00675354.

XX 30-DEC-1991; 91US-00814759.

XX 15-APR-1993; 93US-00049794.

XX (NEUR-) NEUREX CORP.

XX Miljanich GP, Gohil KC, Valentino KL, Justice A, Singh T;

XX WPI; 1999-120002/10.

XX Production of analgesia in mammal - by administration of omega cono-  
 PT peptide(s).

XX Disclosure; Fig 1A; 59pp; English.

XX Sequences AAW95564-573 represent primary sequences of natural omega-  
 CC conopeptides. Omega-conopeptides are components of peptide toxins  
 CC produced by marine snails of the genus Conus, and which act as calcium  
 CC channel blockers. The invention relates to a method of producing  
 CC analgesia in a mammal that comprises administering an omega conopeptide  
 CC having activities in (a) inhibiting electrically stimulated contraction  
 CC of guinea pig ileum and (b) selectively binding to omega conopeptide  
 CC MVIIA binding sites in neuronal tissue, where these activities are within  
 CC the ranges of those of omega-conotoxins MVIIA and TVIA. The method is  
 CC used for treating chronic pain, especially neuropathic pain

XX Sequence 29 AA;

Query Match 96.3%; Score 157; DB 2; Length 29;  
 Best Local Similarity 93.1%; Pred. No. 1.9e-11;  
 Matches 27; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CKSXGTGCSRGMRDCTCTSLLYSNKCRRY 29  
 DB 1 CKSPGTPCSRGMRDCTCTSLLYSNKCRRY 29

RESULT 8

AA42338  
 ID AAY42338 standard; peptide; 29 AA.

XX AAY42338;

XX 20-DEC-1999 (first entry)

XX Omega-conotoxin OCT GVIIA.

XX Calcium channel; neuron; retina; optic nerve; trauma; ischaemia; vision;  
 KW prevention.

XX Conus sp.

XX Key Location/Qualifiers  
 FH Disulfide-bond 1..16



```

FT Modified-site 4 /label= 4Hyp
FT Modified-site 7 /label= 4Hyp
FT Disulfide-bond 8. .19
FT Disulfide-bond 15. .26
FT Misc-difference 25
FT /note= "Optionally contains C-terminal amide"
XX
PN US5965534-A.
XX
XX 12-OCT-1999.
XX
XX 13-WAR-1998; 98US-00039168.
XX
XX 22-NOV-1995; 95US-00562142.
XX (ALCO-) ALCON LAB INC.
XX
XX Hellberg M, Pang I, Kapin M;
XX WPI; 1999-579926/49.
XX
XX Treatment or prevention of retinal or optic nerve head damage comprises
XX administration of an omega-conotoxin derivative.
XX
XX Claim 2; Col 9-10; 7pp; English.
XX
XX This sequence represents omega-conotoxin OCT GVIIA. Omega-conotoxins
XX selectively block N-type calcium channels responsible for calcium influx
XX in neurons. Acute retinal or optic nerve damage, which can result in the
XX loss of vision, is caused by acute trauma and pathological events such as
XX ischaemia, hypoxia or oedema. The release of excitatory amino acids is
XX implicated in ischaemia-related neuronal and retinal damage, with
XX excitatory amino acid release leading to excessive stimulation of post-
XX synaptic excitatory amino acid receptors, which can result in cell
XX injury. The release of such excitatory amino acids from presynaptic nerve
XX terminals is dependent upon an elevation of calcium in the nerve
XX terminal. This presynaptic calcium influx is mediated by the N-type
XX calcium channels that are inhibited by omega-conotoxins. Intracellular
XX administration of at least one omega-conotoxin could be used for the
XX treatment or prevention of retinal or optic nerve head damage resulting
XX from acute traumatic or acute ischaemic events
XX
SQ Sequence 29 AA;
Query Match 96.3%; Score 157; DB 2; Length 29;
Best Local Similarity 93.1%; Pred. No. 1.9e-11; Indels 0; Gaps 0;
Matches 27; Conservative 0; Mismatches 2;
QY 1 CKSXGTGCSRGMRDCTCLLYSNKRRY 29
Db 1 CKSPGTPCSRGMRDCTCLLYSNKRRY 29
RESULT 9
AAB14355
ID AAB14355 standard; peptide; 29 AA.
XX
XX AAB14355;
XX
XX 06-DEC-2000 (first entry)
XX
XX Omega-conopeptide GVIIA/SNX-178.
XX
XX Marine snail; omega-conopeptide; calcium channel blocker; GVIIA; SNX-178;
XX toxin; analgesic; antiinflammatory; anticonvulsant; neuroleptic;
XX norepinephrine release inhibitor; schizophrenia; tardive dyskinesia;
XX acute dystonic reaction; inflammation; epilepsy.
XX
XX Conus sp.
XX
XX Key Location/Qualifiers

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FT Disulfide-bond 1. .16
FT Modified-site 4 /label= 4Hyp
FT Modified-site 7 /label= 4Hyp
FT Disulfide-bond 8. .19
FT Disulfide-bond 15. .26
FT Modified-site 29 /note= "C-terminal amide"
XX
XX US6087091-A.
XX
XX 11-JUL-2000.
XX
XX 23-APR-1999; 99US-00298017.
XX
XX 30-DEC-1991; 91US-00814759.
XX 15-APR-1993; 93US-00049794.
XX 03-JUL-1996; 96US-00675354.
XX 01-NOV-1996; 96US-00742774.
XX 21-AUG-1998; 98US-00138439.
XX (ELAN-) ELAN PHARM INC.
XX
XX Singh T, Gohil KC, Valentino KL, Miljanich GP, Justice A;
XX WPI; 2000-490177/43.
XX
XX Selecting a compound for producing analgesia involves measuring activity
XX of test compound in blocking voltage-gated calcium channels, binding to
XX omega conopeptide binding site and inhibiting norepinephrine release.
XX
XX Disclosure; Fig 1; 58pp; English.
XX
XX The present sequence is an omega-conopeptide from marine snails of the
XX genus Conus. Omega-conopeptides are components of peptide toxins produced
XX by the cone snails, and which act as calcium channel blockers. Natural
XX omega-conopeptides and their derivatives may be useful for producing
XX analgesia in nociceptive and neuropathic pain. The peptides bind to omega
XX -conopeptide binding sites, which are present mainly in neuronal tissue,
XX and inhibit norepinephrine release from nervous tissue. Conopeptides such
XX as GVIIA and TVIIA are effective as therapeutic agents for treating
XX neurogenic conditions such as schizophrenia, tardive dyskinesia and acute
XX dystonic reactions, inflammation and epilepsy
XX
XX Sequence 29 AA;
Query Match 96.3%; Score 157; DB 3; Length 29;
Best Local Similarity 93.1%; Pred. No. 1.9e-11; Indels 0; Gaps 0;
Matches 27; Conservative 0; Mismatches 2;
QY 1 CKSXGTGCSRGMRDCTCLLYSNKRRY 29
Db 1 CKSPGTPCSRGMRDCTCLLYSNKRRY 29
RESULT 10
AAB19445
ID AAB19445 standard; peptide; 29 AA.
XX
XX AAB19445;
XX
XX 06-MAR-2001 (first entry)
XX
XX Primary sequence of a natural omega-conopeptide GVIIA/SNX-178.
XX
XX Omega-conopeptide; voltage-gated calcium channel inhibitor; analgesic;
XX peptide toxin; opiate; pain; neuronal damage; ischemic condition;
XX schizophrenia; tardive dyskinesia; acute dystonic reaction; inflammation;
XX epilepsy.
XX
XX Conus sp.
XX
XX

```





XX	WO200207675-A2.
PN	
XX	
PD	31-JAN-2002.
XX	
PP	23-JUL-2001; 2001WO-US023041.
XX	
XX	21-JUL-2000; 2000US-0219616P.
XX	05-FEB-2001; 2001US-0265888P.
XX	(UTAH ) UNIV UTAH RES FOUND.
XX	(COGN-) COGNETIX INC.
PA	
XX	
PI	Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Shon K;
PI	Jacobson R, Jones RM, Cartier GE;
DR	WPI; 2002-257318/30.
XX	
PT	New omega-conopeptides useful for treating disorders associated with
PT	voltage gated ion channels e.g. pain, inflammation, neurologic or
PT	cardiovascular disorders.
XX	
PS	Claim 1(a); Page 71; 195pp; English.
XX	
CC	The invention relates to isolated omega-conopeptides, nucleic acid
CC	sequences encoding them, and propeptide sequences. The activity of the
CC	peptides of the invention may be described as, analgesic, anticonvulsant,
CC	vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular,
CC	antiinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary,
CC	antipsychotic, anxiolytic and neuroleptic. Peptides of the invention act
CC	by modulating the activity of voltage gated ion channels. They may be
CC	used for treating or preventing disorders associated with voltage gated
CC	ion channels such as neurological disorders, e.g. seizure (associated
CC	with epilepsy), neurotoxic injury associated with conditions of hypoxia,
CC	anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal
CC	chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic
CC	events; pain e.g. migraine; inflammation or cardiovascular disorders.
CC	They may also be used for treating psychiatric disorders e.g. psychosis,
CC	anxiety or schizophrenia. The analgesic agents of the invention show
CC	diminished side effects and toxicity, and are non-addictive. The
CC	sequences given in records ABB96807-ABB96905 represent omega-conopeptide
CC	toxin sequences
XX	
SQ	Sequence 29 AA;
	Query Match 93.3%; Score 152; DB 5; Length 29;
	Best Local Similarity 89.7%; Fred. No. 7.4e-11;
	Matches 26; Conservative 0; Mismatches 3; Indels 0; Gaps 0
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DB	1 CKSPGTGCSRGMRDCCCTCLLYSNKCRRY 29
RESULT 15	
ABB96641	
ID	ABB96641 standard; peptide; 74 AA.
XX	
AC	ABB96641;
XX	
DT	12-JUL-2002 (first entry)
XX	
DE	Omega-conopeptide G6.2 propeptide.
XX	
KW	Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW	neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW	antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW	anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW	neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW	stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW	drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW	migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW	psychosis; anxiety; schizophrenia

[illegible]

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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:51:32 ; Search time 23.4488 Seconds  
(without alignments)  
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Perfect score: 163  
Sequence: 1 CKSXTGCSRGMRDCTCLLYSNKCRY 29

Scoring table: BLOSUMP62  
Gapup 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

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6: /cgn2\_6/prodata/1/1aa/backfiles1.pep:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	159	97.5	29	1 US-07-789-913-4	Sequence 4, Appl
2	159	97.5	29	1 US-08-049-794-4	Sequence 4, Appl
3	159	97.5	29	1 US-08-496-847-4	Sequence 4, Appl
4	159	97.5	29	2 US-08-742-774-4	Sequence 4, Appl
5	159	97.5	29	2 US-08-675-354-4	Sequence 4, Appl
6	159	97.5	29	2 US-08-965-918-4	Sequence 4, Appl
7	159	97.5	29	2 US-09-039-168-4	Sequence 4, Appl
8	159	97.5	29	2 US-09-138-439-4	Sequence 4, Appl
9	159	97.5	29	3 US-08-613-400A-4	Sequence 4, Appl
10	159	97.5	29	3 US-09-298-017-4	Sequence 4, Appl
11	159	97.5	29	3 US-09-392-979A-4	Sequence 4, Appl
12	159	97.5	29	6 5189020-4	Patent No. 5189020
13	159	97.5	29	6 5424218-4	Patent No. 5424218
14	159	97.5	29	6 5189020-4	Patent No. 5189020
15	159	97.5	29	6 5424218-4	Patent No. 5424218
16	99	60.7	27	1 US-07-789-913-21	Sequence 21, Appl
17	91	55.8	27	1 US-07-789-913-20	Sequence 20, Appl
18	91	55.8	27	1 US-08-049-794-20	Sequence 20, Appl
19	91	55.8	27	1 US-08-496-847-20	Sequence 20, Appl
20	91	55.8	27	2 US-08-742-774-20	Sequence 20, Appl
21	91	55.8	27	2 US-08-675-354-20	Sequence 20, Appl
22	91	55.8	27	2 US-08-965-918-20	Sequence 20, Appl
23	91	55.8	27	2 US-09-138-439-20	Sequence 20, Appl
24	91	55.8	27	3 US-08-613-400A-20	Sequence 20, Appl
25	91	55.8	27	3 US-09-298-017-20	Sequence 20, Appl
26	91	55.8	27	3 US-09-392-979A-20	Sequence 20, Appl
27	89	54.6	27	1 US-08-049-794-30	Sequence 30, Appl

28 89 54.6 27 1 US-08-496-847-30 Sequence 30, Appl  
29 89 54.6 27 2 US-08-742-774-30 Sequence 30, Appl  
30 89 54.6 27 2 US-08-675-354-30 Sequence 30, Appl  
31 89 54.6 27 2 US-08-965-918-30 Sequence 30, Appl  
32 89 54.6 27 3 US-09-138-439-30 Sequence 30, Appl  
33 89 54.6 27 3 US-08-613-400A-30 Sequence 30, Appl  
34 89 54.6 27 3 US-09-298-017-30 Sequence 30, Appl  
35 89 54.6 27 3 US-09-392-979A-30 Sequence 30, Appl  
36 81 49.7 27 1 US-07-789-913-7 Sequence 7, Appl  
37 81 49.7 27 1 US-08-049-794-7 Sequence 7, Appl  
38 81 49.7 27 1 US-08-496-847-7 Sequence 7, Appl  
39 81 49.7 27 2 US-08-742-774-7 Sequence 7, Appl  
40 81 49.7 27 2 US-08-675-354-7 Sequence 7, Appl  
41 81 49.7 27 2 US-08-965-918-7 Sequence 7, Appl  
42 81 49.7 27 2 US-09-039-168-7 Sequence 7, Appl  
43 81 49.7 27 2 US-09-138-439-7 Sequence 7, Appl  
44 81 49.7 27 3 US-08-613-400A-7 Sequence 7, Appl  
45 81 49.7 27 3 US-09-298-017-7 Sequence 7, Appl

## ALIGNMENTS

RESULT 1  
US-07-789-913-4  
; Sequence 4, Application US/07789913  
; Patent No. 5559095  
; GENERAL INFORMATION:  
; APPLICANT: Miljanich, George P.  
; APPLICANT: Bowersox, Stephen S.  
; APPLICANT: Fox, James A.  
; APPLICANT: Valentino, Karen L.  
; APPLICANT: Bitner, Robert S.  
; APPLICANT: Yamashiro, Donald H.  
; TITLE OF INVENTION: Delayed Treatment Method of Reducing Ischemia-Related Neuronal Damage  
; NUMBER OF SEQUENCES: 28  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07789,913  
FILING DATE: 19911112  
CLASSIFICATION: 514  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/561,766  
FILING DATE: 02-AUG-1990  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/440,094  
FILING DATE: 22-NOV-1989  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0005.30  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 4:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 29 amino acids  
TYPE: AMINO ACID  
TOPOLOGY: both  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO

ANTI-SENSE: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: SNX-178  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 4.5  
OTHER INFORMATION: /note= "where Xaa is  
OTHER INFORMATION: hydroxyproline"  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 7.8  
OTHER INFORMATION: /note= "where Xaa is  
OTHER INFORMATION: hydroxyproline"  
US-07-789-913-4

Query Match 97.5%; Score 159; DB 1; Length 29;  
Best Local Similarity 100.0%; Pred. No. 4.6e-12;  
Matches 29; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CKSXTXCSRGMRDCTSCLLYSNKCRRY 29  
Db 1 CKSXTXCSRGMRDCTSCLLYSNKCRRY 29

## RESULT 2

US-08-049-794-4  
Sequence 4, Application US/08049794  
Patent No. 5587454  
GENERAL INFORMATION:  
APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent in Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 19930415  
CLASSIFICATION: 514  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/814,759  
FILING DATE: 30-DEC-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 4:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 29 amino acids  
TYPE: AMINO ACID  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: GVIIA/SNX-178, FIGURE 1  
FEATURE:

NAME/KEY: Modified-site  
LOCATION: 4  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 7  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-08-049-794-4

Query Match 97.5%; Score 159; DB 1; Length 29;  
Best Local Similarity 100.0%; Pred. No. 4.6e-12;  
Matches 29; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CKSXTXCSRGMRDCTSCLLYSNKCRRY 29  
Db 1 CKSXTXCSRGMRDCTSCLLYSNKCRRY 29

## RESULT 3

US-08-496-847-4  
Sequence 4, Application US/08496847  
Patent No. 5795864  
GENERAL INFORMATION:  
APPLICANT: Amstutz, Gary A.  
APPLICANT: Bowersox, Stephen S.  
APPLICANT: Gohil, Kishorchandra  
APPLICANT: Adriaenssens, Peter I.  
APPLICANT: Kristipati, Ramasharma  
TITLE OF INVENTION: METHODS AND  
TITLE OF INVENTION: FORMULATIONS FOR PREVENTING PROGRESSION OF NEUROPATHIC PAIN  
NUMBER OF SEQUENCES: 36  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Dehlinger & Associates  
STREET: 350 Cambridge Avenue, Suite 250  
CITY: Palo Alto  
STATE: CA  
COUNTRY: US  
ZIP: 94306-1546  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: DOS  
SOFTWARE: FastSeq for Windows Version 2.0  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/496,847  
FILING DATE: 27-JUN-1995  
CLASSIFICATION: 514  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.31  
TELEPHONE: 650-324-0880  
TELEFAX: 650-324-0960  
INFORMATION FOR SEQ ID NO: 4:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 29 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: GVIIA/SNX-178, FIGURE 1  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 4  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 7  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-08-496-847-4

Query Match 97.5%; Score 159; DB 1; Length 29;  
Best Local Similarity 100.0%; Pred. No. 4.6e-12; Indels 0; Gaps 0;  
Matches 29; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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DB 1 CKSXTGTCRGMRDCTSCLLYSNKCRRY 29

RESULT 4  
US-08-742-774-4  
; Sequence 4, Application US/08742774  
; Patent No. 5824645  
; GENERAL INFORMATION:  
; APPLICANT: JUSTICE, ALAN  
; APPLICANT: SINGH, TEJINDER  
; APPLICANT: GOHIL, KISHOR C  
; APPLICANT: VALENTINO, KAREN L  
; APPLICANT: MILJANICH, GEORGE P  
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
; NUMBER OF SEQUENCES: 34  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/742,774  
; FILING DATE:  
; CLASSIFICATION:  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 08/675,354  
; FILING DATE: 03-JUL-1996  
; APPLICATION NUMBER: US/08/049,794  
; FILING DATE: 1993-APR-15  
; APPLICATION NUMBER: US 07/814,759  
; FILING DATE: 30-DEC-1991  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0009.30  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 4:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 29 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: GVIIA/SNX-178, FIGURE 1  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 4  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 7  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-08-742-774-4

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Best Local Similarity 100.0%; Pred. No. 4.6e-12;

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DB 1 CKSXTGTCRGMRDCTSCLLYSNKCRRY 29

Matches 29; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CKSXTGTCRGMRDCTSCLLYSNKCRRY 29  
DB 1 CKSXTGTCRGMRDCTSCLLYSNKCRRY 29  
RESULT 5  
US-08-675-354-4  
; Sequence 4, Application US/08675354  
; Patent No. 5859186  
; GENERAL INFORMATION:  
; APPLICANT: JUSTICE, ALAN  
; APPLICANT: SINGH, TEJINDER  
; APPLICANT: GOHIL, KISHOR C  
; APPLICANT: VALENTINO, KAREN L  
; APPLICANT: MILJANICH, GEORGE P  
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
; NUMBER OF SEQUENCES: 34  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/675,354  
; FILING DATE: 03-JUL-1996  
; CLASSIFICATION: 530  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US/08/049,794  
; FILING DATE: 1993-APR-15  
; APPLICATION NUMBER: US 07/814,759  
; FILING DATE: 30-DEC-1991  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0009.30  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 4:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 29 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: GVIIA/SNX-178, FIGURE 1  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 4  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 7  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-08-675-354-4

Query Match 97.5%; Score 159; DB 2; Length 29;  
Best Local Similarity 100.0%; Pred. No. 4.6e-12;  
Matches 29; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKSXTGTCRGMRDCTSCLLYSNKCRRY 29

Db 1 CKSXTGTCRGMRDCTCTCLLYSNKCRY 29

## RESULT 6

US-08-965-918-4  
; Sequence 4, Application US/08965918  
; Patent No. 5891849  
; GENERAL INFORMATION:  
; APPLICANT: Amstutz, Gary A.  
; APPLICANT: Bowersox, Stephen S.  
; APPLICANT: Gohil, Kishorchandra  
; APPLICANT: Adriaenssens, Peter I.  
; APPLICANT: Kristipati, Ramasharma  
; TITLE OF INVENTION: METHODS AND FORMULATIONS FOR PREVENTING  
; PROGRESSION OF NEUROPATHIC PAIN  
; NUMBER OF SEQUENCES: 36  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Dehlinger & Associates  
; STREET: 350 Cambridge Avenue, Suite 250  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: US  
; ZIP: 94306-1546  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Diskette  
; COMPUTER: IBM Compatible  
; OPERATING SYSTEM: DOS  
; SOFTWARE: FASSEQ for Windows Version 2.0  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/965,918  
; FILING DATE: 07-NOV-1997  
; CLASSIFICATION: 514  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Mohr, Judy M.  
; REGISTRATION NUMBER: 38,563  
; REFERENCE/DOCKET NUMBER: 5865-0009.34  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 650-324-0880  
; TELEFAX: 650-324-0960  
; INFORMATION FOR SEQ ID NO: 4:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 29 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; HYPOTHEICAL: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: GVIIA/SNX-178, FIGURE 1  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 4  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 7  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-08-965-918-4

Query Match 97.5%; Score 159; DB 2; Length 29;  
Best Local Similarity 100.0%; Pred. No. 4.6e-12;  
Matches 29; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CKSXTGTCRGMRDCTCTCLLYSNKCRY 29  
Db 1 CKSXTGTCRGMRDCTCTCLLYSNKCRY 29

## RESULT 7

US-09-039-168-4  
; Sequence 4, Application US/09039168  
; Patent No. 5965534  
; GENERAL INFORMATION:  
; APPLICANT: Pang, Iok-Hou; Kapin, Michael and Hellberg,

; APPLICANT: Mark  
; TITLE OF INVENTION: The Use of w-Conotoxin Analogs For  
; Treating Retinal and Optic Nerve Head Damage  
; NUMBER OF SEQUENCES: 7  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Alcon Laboratories, Inc.  
; STREET: 6201 South Freeway, Patent Legal  
; CITY: Fort Worth  
; STATE: Texas  
; COUNTRY: USA  
; ZIP: 76134-2099  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: 1.2 mg, 3.25" floppy disk  
; COMPUTER: Compaq Deskpro XE 560  
; OPERATING SYSTEM: Microsoft Windows for Workgroups,  
; OPERATING SYSTEM: Version 3.11  
; SOFTWARE: Microsoft Word 6.0  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/09/039,168  
; FILING DATE:  
; CLASSIFICATION:  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 08/562,142  
; FILING DATE: No. 5965534ember 22, 1995  
; ATTORNEY/AGENT INFORMATION:  
; NAME: MAYO, MICHAEL C.  
; REGISTRATION NUMBER: 38,545  
; REFERENCE/DOCKET NUMBER: 1462  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (817) 551-4321  
; TELEFAX: (817) 551-4610  
; INFORMATION FOR SEQ ID NO: 4:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 29 amino acids  
; TYPE: amino acid  
; STRANDEDNESS:  
; TOPOLOGY: unknown  
; MOLECULE TYPE:  
; DESCRIPTION: peptide  
; HYPOTHEICAL: No  
; ANTI-SENSE: No  
US-09-039-168-4

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Db 1 CKSXTGTCRGMRDCTCTCLLYSNKCRY 29

## RESULT 8

US-09-138-439-4  
; Sequence 4, Application US/09138439  
; Patent No. 5994305  
; GENERAL INFORMATION:  
; APPLICANT: JUSTICE, ALAN  
; APPLICANT: SINGH, TEJINDER  
; APPLICANT: GOHIL, KISHOR C  
; APPLICANT: VALENTINO, KAREN L  
; APPLICANT: MILANICH, GEORGE P  
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
; ENHANCING OPIATE ANALGESIA  
; NUMBER OF SEQUENCES: 34  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:



;/ MEDIUM TYPE: Floppy disk  
;/ COMPUTER: IBM PC compatible  
;/ OPERATING SYSTEM: PC-DOS/MS-DOS  
;/ SOFTWARE: Patent In Release #1.0, Version #1.25  
;/ CURRENT APPLICATION DATA:  
;/ APPLICATION NUMBER: US/09/138,439  
;/ FILING DATE:  
;/ CLASSIFICATION:  
;/ PRIOR APPLICATION DATA:  
;/ APPLICATION NUMBER: US/08/049,794  
;/ FILING DATE: 1993-04-15  
;/ APPLICATION NUMBER: US 07/814,759  
;/ FILING DATE: 30-DEC-1991  
;/ ATTORNEY/AGENT INFORMATION:  
;/ NAME: Stratford, Carol A.  
;/ REGISTRATION NUMBER: 34,444  
;/ REFERENCE/DOCKET NUMBER: 5865-0009.30  
;/ TELECOMMUNICATION INFORMATION:  
;/ TELEPHONE: (415) 324-0880  
;/ TELEFAX: (415) 324-0960  
;/ INFORMATION FOR SEQ ID NO: 4:  
;/ SEQUENCE CHARACTERISTICS:  
;/ LENGTH: 29 amino acids  
;/ TYPE: amino acid  
;/ TOPOLOGY: linear  
;/ MOLECULE TYPE: protein  
;/ HYPOTHETICAL: NO  
;/ ORIGINAL SOURCE:  
;/ INDIVIDUAL ISOLATE: GVIIA/SNX-178, FIGURE 1  
;/ FEATURE:  
;/ NAME/KEY: Modified-site  
;/ LOCATION: 4  
;/ OTHER INFORMATION: /note= "where X is hydroxyproline"  
;/ FEATURE:  
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RESULT 9  
US-08-613-400A-4  
;/ Sequence 4, Application US/08613400A  
;/ Patent No. 6054429  
;/ GENERAL INFORMATION:  
;/ APPLICANT: Bowersox, S. Scott  
;/ APPLICANT: Gadbois, Theresa  
;/ APPLICANT: Pettus, Mark, R.  
;/ APPLICANT: Luther, Robert, R.  
;/ TITLE OF INVENTION: IMPROVED EPIDURAL  
;/ TITLE OF INVENTION: METHOD OF PRODUCING ANALGESIA  
;/ NUMBER OF SEQUENCES: 36  
;/ CORRESPONDENCE ADDRESS:  
;/ ADDRESS: Dehlinger & Associates  
;/ STREET: 350 Cambridge Avenue, Suite 250  
;/ CITY: Palo Alto  
;/ STATE: CA  
;/ COUNTRY: US  
;/ ZIP: 94306-1546  
;/ COMPUTER READABLE FORM:  
;/ MEDIUM TYPE: Diskette  
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;/ OPERATING SYSTEM: DOS  
;/ SOFTWARE: FastSeq for Windows Version 2.0  
;/ CURRENT APPLICATION DATA:

;/ APPLICATION NUMBER: US/08/613,400A  
;/ FILING DATE: 08-MAR-1996  
;/ CLASSIFICATION: 514  
;/ PRIOR APPLICATION DATA:  
;/ APPLICATION NUMBER:  
;/ FILING DATE:  
;/ ATTORNEY/AGENT INFORMATION:  
;/ NAME: Stratford, Carol A.  
;/ REGISTRATION NUMBER: 34,444  
;/ REFERENCE/DOCKET NUMBER: 5865-0019  
;/ TELECOMMUNICATION INFORMATION:  
;/ TELEPHONE: 650-324-0880  
;/ TELEFAX: 650-324-0960  
;/ INFORMATION FOR SEQ ID NO: 4:  
;/ SEQUENCE CHARACTERISTICS:  
;/ LENGTH: 29 amino acids  
;/ TYPE: amino acid  
;/ TOPOLOGY: linear  
;/ MOLECULE TYPE: protein  
;/ HYPOTHETICAL: NO  
;/ ORIGINAL SOURCE:  
;/ INDIVIDUAL ISOLATE: GVIIA/SNX-178, FIGURE 1  
;/ FEATURE:  
;/ NAME/KEY: Modified-site  
;/ LOCATION: 4  
;/ OTHER INFORMATION: /note= "where X is hydroxyproline"  
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;/ NAME/KEY: Modified-site  
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Db 1 CKSXGTGCSRGMRDCTCTCLLYSNKCRRY 29  
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RESULT 10  
US-09-298-017-4  
;/ Sequence 4, Application US/09298017  
;/ Patent No. 6087091  
;/ GENERAL INFORMATION:  
;/ APPLICANT: JUSTICE, ALAN  
;/ APPLICANT: SINGH, TEJINDER  
;/ APPLICANT: GOHIL, KISHOR C.  
;/ APPLICANT: VALENTINO, KAREN L.  
;/ APPLICANT: MILJANICH, GEORGE P.  
;/ TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
;/ TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
;/ NUMBER OF SEQUENCES: 34  
;/ CORRESPONDENCE ADDRESS:  
;/ ADDRESS: Law Offices of Peter Dehlinger  
;/ STREET: 350 Cambridge Avenue, Suite 300  
;/ CITY: Palo Alto  
;/ STATE: CA  
;/ COUNTRY: USA  
;/ ZIP: 94306  
;/ COMPUTER READABLE FORM:  
;/ MEDIUM TYPE: Floppy disk  
;/ COMPUTER: IBM PC compatible  
;/ OPERATING SYSTEM: PC-DOS/MS-DOS  
;/ SOFTWARE: Patent In Release #1.0, Version #1.25  
;/ CURRENT APPLICATION DATA:  
;/ APPLICATION NUMBER: US/09/298,017  
;/ FILING DATE:  
;/ CLASSIFICATION:  
;/ PRIOR APPLICATION DATA:  
;/ APPLICATION NUMBER: 08/049,794  
;/ FILING DATE:

ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 4:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 29 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: GVIIA/SNX-178, FIGURE 1  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 4  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 7  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-09-298-017-4

Query Match 97.5%; Score 159; DB 3; Length 29;  
Best Local Similarity 100.0%; Pred. No. 4.6e-12;  
Matches 29; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKSXTGTCRGMRDCTSCLLYSNKCRRY 29  
DB 1 CKSXTGTCRGMRDCTSCLLYSNKCRRY 29

RESULT 11  
US-09-392-979A-4  
Sequence 4, Application US/09392979A  
Patent No. 6136786  
GENERAL INFORMATION:  
APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:  
ADDRESSER: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/09/392, 979A  
FILING DATE:  
CLASSIFICATION:  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 1993-04-15  
APPLICATION NUMBER: US 07/814,759  
FILING DATE: 30-DEC-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30

TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 4:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 29 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: GVIIA/SNX-178, FIGURE 1  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 4  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 7  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-09-392-979A-4

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DB 1 CKSXTGTCRGMRDCTSCLLYSNKCRRY 29

RESULT 12  
5189020-4  
Patent No. 5189020  
APPLICANT: Miljanich, George P.; Bitner, Robert S.; Bowersox, Stephen S.; Fox, James A.; Valentino, Karen L.; Yamashiro, Donald H.; Teubokawa, Makoto  
TITLE OF INVENTION: METHOD OF REDUCING NEURONAL DAMAGE USING  
OMEGA CONOTOXIN PEPTIDES  
NUMBER OF SEQUENCES: 29  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/561,766  
FILING DATE: 02-AUG-1990  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 440,094  
FILING DATE: 22-NOV-1989  
SEQ ID NO: 4:  
LENGTH: 29  
5189020-4

Query Match 97.5%; Score 159; DB 6; Length 29;  
Best Local Similarity 100.0%; Pred. No. 4.6e-12;  
Matches 29; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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DB 1 CKSXTGTCRGMRDCTSCLLYSNKCRRY 29

RESULT 13  
5424218-4  
Patent No. 5424218  
APPLICANT: MILJANICH, GEORGE P.; BITNER, ROBERT S.; BOWERSOX, STEPHEN S.; FOX, JAMES A.; VALENTINO, KAREN L.; YAMASHIRO, DONALD H.  
TITLE OF INVENTION: SCREENING METHOD FOR NEUROPROTECTIVE COMPOUNDS  
NUMBER OF SEQUENCES: 21  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/147,714  
FILING DATE: 04-NOV-1993  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 855,269  
FILING DATE: 23-MAR-1992  
APPLICATION NUMBER: 561,766

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RESULT 14
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; Patent No. 5189020
; APPLICANT: Miljanich, George P.; Bitner, Robert S.; Bowersox,
; Stephen S.; Fox, James A.; Valentino, Karen L.; Yamashiro, Donald
; H.; Tsubokawa, Makoto
; TITLE OF INVENTION: METHOD OF REDUCING NEURONAL DAMAGE USING
; OMEGA CONOTOXIN PEPTIDES
; NUMBER OF SEQUENCES: 29
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/561,766
; FILING DATE: 02-AUG-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 440,094
; FILING DATE: 22-NOV-1989
; SEQ ID NO:4:
; LENGTH: 29
5189020-4

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RESULT 15
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; Patent No. 5424218
; APPLICANT: MILJANICH, GEORGE P.; BITNER, ROBERT S.; BOWERSOX,
; STEPHEN S.; FOX, JAMES A.; VALENTINO, KAREN L.; YAMASHIRO, DONALD H.
; TITLE OF INVENTION: SCREENING METHOD FOR NEUROPROTECTIVE COMPOUNDS
; NUMBER OF SEQUENCES: 21
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/147,714
; FILING DATE: 04-NOV-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 855,269
; FILING DATE: 23-MAR-1992
; APPLICATION NUMBER: 561,766
; FILING DATE: 02-AUG-1990
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Best Local Similarity 100.0%; Pred. No. 4.6e-12;
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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 23:46:47 ; Search time 66.1353 Seconds  
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Title: US-09-787-082A-15  
Perfect score: 163  
Sequence: 1 CKSXTGTCRGMRDCTSCLLYSNKERRY 29

Scoring table: BLOSUM62  
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Listing first 45 summaries

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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2	157	96.3	55	16	US-10-765-926-147
3	152	93.3	29	10	US-09-910-082A-357
4	152	93.3	29	16	US-10-765-926-357
5	152	93.3	74	10	US-09-910-082A-139
6	152	93.3	74	16	US-10-765-926-139
7	144	88.3	29	10	US-09-910-082A-148
8	144	88.3	29	16	US-10-765-926-148
9	140	85.9	29	10	US-09-910-082A-140
10	140	85.9	29	16	US-10-765-926-140
11	138	84.7	29	10	US-09-910-082A-149
12	138	84.7	29	16	US-10-765-926-149
13	93	57.1	29	10	US-09-910-082A-158

14	93	57.1	29	16	US-10-765-926-158	Sequence 158, App
15	92	56.4	29	10	US-09-910-082A-368	Sequence 368, App
16	92	56.4	29	16	US-10-765-926-368	Sequence 368, App
17	92	56.4	30	10	US-09-910-082A-358	Sequence 358, App
18	92	56.4	30	16	US-10-765-926-358	Sequence 358, App
19	92	56.4	75	10	US-09-910-082A-157	Sequence 157, App
20	92	56.4	75	16	US-10-765-926-157	Sequence 157, App
21	92	56.4	76	10	US-09-910-082A-2	Sequence 2, Appli
22	92	56.4	76	16	US-10-765-926-2	Sequence 2, Appli
23	85	52.1	30	10	US-09-910-082A-3	Sequence 3, Appli
24	85	52.1	30	16	US-10-765-926-3	Sequence 3, Appli
25	84.5	51.8	27	10	US-09-910-082A-350	Sequence 350, App
26	84.5	51.8	27	16	US-10-765-926-350	Sequence 350, App
27	84.5	51.8	73	10	US-09-910-082A-94	Sequence 94, Appl
28	84.5	51.8	73	16	US-10-765-926-94	Sequence 94, Appl
29	80	49.1	30	10	US-09-910-082A-364	Sequence 364, App
30	80	49.1	30	16	US-10-765-926-364	Sequence 364, App
31	80	49.1	75	10	US-09-910-082A-178	Sequence 178, App
32	80	49.1	75	16	US-10-765-926-178	Sequence 178, App
33	79.5	48.8	27	10	US-09-910-082A-398	Sequence 398, App
34	79.5	48.8	27	16	US-10-765-926-398	Sequence 398, App
35	79.5	48.8	73	10	US-09-910-082A-244	Sequence 244, App
36	79.5	48.8	73	16	US-10-765-926-244	Sequence 244, App
37	77.5	47.5	27	10	US-09-910-082A-95	Sequence 95, Appl
38	77.5	47.5	27	16	US-10-765-926-95	Sequence 95, Appl
39	77	47.2	27	10	US-09-910-082A-284	Sequence 284, App
40	77	47.2	27	16	US-10-765-926-284	Sequence 284, App
41	77	47.2	73	10	US-09-910-082A-283	Sequence 283, App
42	77	47.2	73	16	US-10-765-926-283	Sequence 283, App
43	77	47.2	73	16	US-10-765-926-286	Sequence 286, App
44	77	47.2	73	16	US-10-765-926-286	Sequence 286, App
45	75	46.0	26	10	US-09-910-082A-413	Sequence 413, App

ALIGNMENTS

RESULT 1  
US-09-910-082A-147  
; Sequence 147, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: Patent in version 3.0  
; SEQ ID NO 147  
; LENGTH: 55  
; TYPE: PRT  
; ORGANISM: Conus geographus  
US-09-910-082A-147

Query Match 96.3%; Score 157; DB 10; Length 55;  
Best Local Similarity 93.1%; Pred. No. 1.6e-11;  
Matches 27; Conservative 0; Mismatches 2; Indels 0; Gaps 0;  
QY 1 CKSXTGTCRGMRDCTSCLLYSNKERRY 29

```
Db      27 CKSPGTPCSRGWRDCTSCLLYSNKCRRY 55
|||||
RESULT 2
US-10-765-926-147
; Sequence 147, Application US/10765926
; Publication No. US20040132663A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/10/765,926
; CURRENT FILING DATE: 2004-01-29
; PRIOR APPLICATION NUMBER: US 09/910,082
; PRIOR FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 147
; LENGTH: 55
; TYPE: PRT
; ORGANISM: Conus geographus
US-10-765-926-147
Query Match      96.3%; Score 157; DB 16; Length 55;
Best Local Similarity 93.1%; Pred. No. 1.6e-11;
Matches 27; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy      1 CKSXGTCSRGWRDCTSCLLYSNKCRRY 29
|||||
Db      27 CKSPGTPCSRGWRDCTSCLLYSNKCRRY 55
|||||
RESULT 3
US-09-910-082A-357
; Sequence 357, Application US/09910082A
; Publication No. US20030119731A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/09/910,082A
; CURRENT FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 357
; LENGTH: 29
; TYPE: PRT
; ORGANISM: Conus geographus
US-09-910-082A-357
Query Match      93.3%; Score 152; DB 16; Length 29;
Best Local Similarity 89.7%; Pred. No. 3.6e-11;
Matches 26; Conservative 0; Mismatches 3; Indels 0; Gaps 0;
```

```
; TYPE: PRT
; ORGANISM: Conus geographus
US-09-910-082A-357
Query Match      93.3%; Score 152; DB 10; Length 29;
Best Local Similarity 89.7%; Pred. No. 3.6e-11;
Matches 26; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

Qy      1 CKSXGTCSRGWRDCTSCLLYSNKCRRY 29
|||||
Db      1 CKSPGTPCSRGWRDCTPCLLYSNKCRRY 29
|||||
RESULT 4
US-10-765-926-357
; Sequence 357, Application US/10765926
; Publication No. US20040132663A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/10/765,926
; CURRENT FILING DATE: 2004-01-29
; PRIOR APPLICATION NUMBER: US 09/910,082
; PRIOR FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 357
; LENGTH: 29
; TYPE: PRT
; ORGANISM: Conus geographus
US-10-765-926-357
Query Match      93.3%; Score 152; DB 16; Length 29;
Best Local Similarity 89.7%; Pred. No. 3.6e-11;
Matches 26; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

Qy      1 CKSXGTCSRGWRDCTSCLLYSNKCRRY 29
|||||
Db      1 CKSPGTPCSRGWRDCTPCLLYSNKCRRY 29
|||||
RESULT 5
US-09-910-082A-139
; Sequence 139, Application US/09910082A
; Publication No. US20030119731A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/09/910,082A
```

; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 139  
; LENGTH: 74  
; TYPE: PRT  
; ORGANISM: Conus geographus  
US-09-910-082A-139

Query Match 93.3%; Score 152; DB 10; Length 74;  
Best Local Similarity 89.7%; Pred. No. 7.9e-11;  
Matches 26; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CKSXTGTCRGMRDCTCTCLLYSNKCRRY 29  
DB 46 CKSPGTPCSRGMRDCTCTCLLYSNKCRRY 74

RESULT 6  
US-10-765-926-139  
; Sequence 139, Application US/10765926  
; Publication No. US20040132663A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/10/765,926  
; CURRENT FILING DATE: 2004-01-29  
; PRIOR APPLICATION NUMBER: US 09/910,082  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 139  
; LENGTH: 74  
; TYPE: PRT  
; ORGANISM: Conus geographus  
US-10-765-926-139

Query Match 93.3%; Score 152; DB 16; Length 74;  
Best Local Similarity 89.7%; Pred. No. 7.9e-11;  
Matches 26; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CKSXTGTCRGMRDCTCTCLLYSNKCRRY 29  
DB 46 CKSPGTPCSRGMRDCTCTCLLYSNKCRRY 74

RESULT 7  
US-09-910-082A-148  
; Sequence 148, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael

; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 148  
; LENGTH: 29  
; TYPE: PRT  
; ORGANISM: Conus geographus  
; FEATURE:  
; NAME/KEY: PEPTIDE  
; LOCATION: (1)..(29)  
; OTHER INFORMATION: Xaa at residue 4 and 7 is Pro or Hyp; Xaa at residue 22 and 29 is  
; OTHER INFORMATION: Tyr, 125I-Tyr, mono-iodo-Tyr, di-iodo-Tyr, O-sulpho-Tyr or O-pho  
; OTHER INFORMATION: spho-Tyr  
US-09-910-082A-148

Query Match 88.3%; Score 144; DB 10; Length 29;  
Best Local Similarity 96.4%; Pred. No. 3.2e-10;  
Matches 27; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKSXTGTCRGMRDCTCTCLLYSNKCRR 28  
DB 1 CKSXTGTCRGMRDCTCTCLLYSNKCRR 28

RESULT 8  
US-10-765-926-148  
; Sequence 148, Application US/10765926  
; Publication No. US20040132663A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/10/765,926  
; CURRENT FILING DATE: 2004-01-29  
; PRIOR APPLICATION NUMBER: US 09/910,082  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 148  
; LENGTH: 29  
; TYPE: PRT  
; ORGANISM: Conus geographus  
; FEATURE:  
; NAME/KEY: PEPTIDE  
; LOCATION: (1)..(29)  
; OTHER INFORMATION: Xaa at residue 4 and 7 is Pro or Hyp; Xaa at  
; OTHER INFORMATION: residue 22 and 29 is Tyr, 125I-Tyr, mono-iodo-Tyr,

; OTHER INFORMATION: di-iodo-Tyr, O-sulpho-Tyr or O-phospho-Tyr  
US-10-765-926-148

Query Match 88.3%; Score 144; DB 16; Length 29;  
Best Local Similarity 96.4%; Pred. No. 3.2e-10;  
Matches 27; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKSXTGTCRGRDCTCTSLLYSNKRR 28  
|||||  
DB 1 CKSXTGTCRGRDCTCTSLLYSNKRR 28  
|||||

## RESULT 9

US-09-910-082A-140  
; Sequence 140, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward

; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 140  
; LENGTH: 29  
; TYPE: PRT  
; ORGANISM: Conus geographus  
; FEATURE:  
; NAME/KEY: PEPTIDE  
; LOCATION: (1)..(29)  
; OTHER INFORMATION: Xaa at residue 4, 7 and 18 is Pro or Hyp; Xaa at residue 22 and 29 is Tyr, 125I-Tyr, mono-iodo-Tyr, di-iodo-Tyr, O-sulpho-Tyr or O-phospho-Tyr

US-09-910-082A-140  
Query Match 85.9%; Score 140; DB 10; Length 29;  
Best Local Similarity 92.9%; Pred. No. 9.5e-10;  
Matches 26; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CKSXTGTCRGRDCTCTSLLYSNKRR 28  
|||||  
DB 1 CKSXTGTCRGRDCTCTSLLYSNKRR 28  
|||||

## RESULT 10

US-10-765-926-140  
; Sequence 140, Application US/10765926  
; Publication No. US20040132663A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward

; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/10/765,926  
; CURRENT FILING DATE: 2004-01-29  
; PRIOR APPLICATION NUMBER: US 09/910,082  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 140  
; LENGTH: 29  
; TYPE: PRT  
; ORGANISM: Conus geographus  
; FEATURE:  
; NAME/KEY: PEPTIDE  
; LOCATION: (1)..(29)  
; OTHER INFORMATION: Xaa at residue 4, 7 and 18 is Pro or Hyp; Xaa at residue 22 and 29 is Tyr, 125I-Tyr, mono-iodo-Tyr, di-iodo-Tyr, O-sulpho-Tyr or O-phospho-Tyr

Query Match 85.9%; Score 140; DB 16; Length 29;  
Best Local Similarity 92.9%; Pred. No. 9.5e-10;  
Matches 26; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CKSXTGTCRGRDCTCTSLLYSNKRR 28  
|||||  
DB 1 CKSXTGTCRGRDCTCTSLLYSNKRR 28  
|||||

## RESULT 11

US-09-910-082A-149  
; Sequence 149, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward

; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 149  
; LENGTH: 29  
; TYPE: PRT  
; ORGANISM: Conus geographus  
; FEATURE:  
; NAME/KEY: PEPTIDE  
; LOCATION: (1)..(29)  
; OTHER INFORMATION: Xaa at residue 4 and 7 is Pro or Hyp; Xaa at residue 22 and 29 is Tyr, 125I-Tyr, mono-iodo-Tyr, di-iodo-Tyr, O-sulpho-Tyr or O-phospho-Tyr

US-09-910-082A-149

Query Match 84.7%; Score 138; DB 10; Length 29;  
Best Local Similarity 92.9%; Pred. No. 1.6e-09;  
Matches 26; Conservative 0; Mismatches 2; Indels 0; Gaps 0;





```

; Sequence 368, Application US/09910082A
; Publication NO. US20030119731A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/09/910,082A
; CURRENT FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: Patentin version 3.0
; SEQ ID NO 368
; LENGTH: 29
; TYPE: PRT
; ORGANISM: Conus laterculatus
; US-09-910-082A-368

Query Match          56.4%; Score 92; DB 10; Length 29;
Best Local Similarity 57.1%; Pred. No. 0.00043;
Matches 16; Conservative 3; Mismatches 9; Indels

QY      1 CKSXGTXCSGRMDCCTCCLLYSNKRR 28
      |||: |||: |||: |||: |||: |||
DB      1 CKSPGSCSVSMRNCTCSNRTKCTR 28

Search completed: March 23, 2005, 00:35:03
Job time : 66.2067 secs

```

Best Local Similarity 89.7%; Pred. No. 1.1e-11;  
Matches 26: Conservative 0; Mismatches 3; Indels

QY 1 CKSXGTGCSRGMRDCTCTCLLYSNKCRY 29  
 DB 1 CKSPGTPCSRGMRDCTCTCLLYSNKCRY 29

RESULT 3  
 NTKN6G

omega-conotoxin GVIB precursor [validated] - cone shell (Conus geographus)  
 N:Alternate names: shaker peptide GVIB  
 N:Contains: omega-conotoxin GVIA; omega-conotoxin GVIC  
 C:Species: Conus geographus (geography cone)  
 C:Date: 25-Feb-1985 #sequence revision 23-Mar-1995 #text\_change 09-Jul-2004  
 C:Accession: A44006; A60133; B60133; A01785  
 R:Colledge, C.J.; Hunspersger, J.P.; Imperial, J.S.; Hillyard, D.R.  
 Toxicol 30, 1111-1116, 1992

A:Title: Precursor structure of omega-conotoxin GVIA determined from a cDNA clone.  
 A:Reference number: A44006; MUID:93069266; PMID:1440648  
 A:Accession: A44006  
 A:Molecule type: mRNA  
 A:Residues: 1-73 <COL>  
 A:Cross-references: UNIPROT:P01522; GB:M84612; NID:gl56520; PIDN:AAA81590.1; PID:gl07039  
 A:Experimental source: venom duct  
 A:Note: sequence extracted from NCBI backbone (NCBIN:119531, NCBI:P:119532)  
 R:Olivera, B.M.; Gray, W.R.; Zeikus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Santos  
 Science 230, 1338-1343, 1985

A:Title: Peptide neurotoxins from fish-hunting cone snails.  
 A:Reference number: A43620; MUID:86070213; PMID:4071055  
 A:Accession: A60133  
 A:Molecule type: protein  
 A:Residues: 46-73 <OLI>  
 A:Accession: B60133  
 A:Molecule type: protein  
 A:Residues: 46-71 <OL2>  
 R:Olivera, B.M.; McIntosh, J.M.; Cruz, L.J.; Luque, F.A.; Gray, W.R.  
 Biochemistry 23, 5087-5090, 1984

A:Title: Purification and sequence of a presynaptic peptide toxin from Conus geographus  
 A:Reference number: A01785; MUID:85072796; PMID:6509012  
 A:Accession: A01785  
 A:Molecule type: protein  
 A:Residues: 46-72 <OL3>  
 R:Nishitani, Y.; Kumagaye, K.; Noda, Y.; Watanabe, T.X.; Sakakibara, S.  
 Biopolymers 25, S61-S68, 1986

A:Title: Synthesis and secondary-structure determination of omega-conotoxin GVIA: a 27-P  
 A:Reference number: A49017; MUID:87049288; PMID:3779030  
 A:Contents: annotation  
 A:Note: disulfide bonds determined and confirmed by chemical synthesis  
 R:Davis, J.H.; Bradley, E.K.; Miljanich, G.P.; Nadasdi, L.; Ramachandran, J.; Basus, V.J.  
 submitted to the Brookhaven Protein Data Bank, April 1993

A:Reference number: A51894; PDB:1OMC  
 A:Contents: annotation; conformation by (1)H-NMR, residues 46-72  
 R:Davis, J.H.; Bradley, E.K.; Miljanich, G.P.; Nadasdi, L.; Ramachandran, J.; Basus, V.J.  
 Biochemistry 32, 7396-7405, 1993

A:Title: Solution structure of omega-conotoxin GVIA using 2-D NMR spectroscopy and relax  
 A:Reference number: A59536; MUID:93332945; PMID:8338837  
 A:Contents: annotation; conformation by (1)H-NMR  
 R:Pallaghy, P.K.; Duggan, B.M.; Pennington, M.W.; Norton, R.S.  
 submitted to the Brookhaven Protein Data Bank, August 1993

A:Reference number: A51089; PDB:1CCO  
 A:Contents: annotation; conformation by (1)H-NMR, residues 46-72  
 A:Comment: There are several types of conotoxins: alpha, acting on postsynaptic membrane  
 neurotoxin.

C:Superfamily: omega-conotoxin  
 C:Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh  
 F:1-22/Domain: signal sequence #status predicted <SIG>  
 F:23-45/Domain: propeptide #status predicted <PRO>  
 F:46-73/Product: omega-conotoxin GVIB #status experimental <MAT1>  
 F:46-72/Product: omega-conotoxin GVIA #status experimental <MAT2>  
 F:46-71/Product: omega-conotoxin GVIC #status experimental <MAT3>  
 F:46-61,53-64,60-71/Disulfide bonds: #status experimental  
 F:49,55,66/Modified site: 4-hydroxyproline (Pro) #status experimental  
 F:72/Modified site: amidated carboxyl end (Tyr) (amide in mature form from following gly

Query Match 44.8%; Score 73; DB 1; Length 73;  
 Best Local Similarity 46.2%; Pred. No. 0.038;  
 Matches 12; Conservative 4; Mismatches 10; Indels 0; Gaps 0;

QY 1 CKSXGTGCSRGMRDCTCTCLLYSNKC 26  
 DB 46 CKSPGSCSPTSYNCRSCNPFYTKRC 71

RESULT 4  
 JH0700

omega-conotoxin MWIIA [validated] - cone shell (Conus magus)  
 C:Species: Conus magus (magus cone)  
 C:Date: 17-Apr-1993 #sequence revision 17-Apr-1993 #text\_change 09-Jul-2004  
 C:Accession: JH0700; C60133; A34115  
 R:Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadasdi, L.; Ramachandran, J.; M  
 Neuron 9, 69-77, 1992

A:Title: A new conus peptide ligand for mammalian presynaptic Ca2+ channels.  
 A:Reference number: JH0699; MUID:92337922; PMID:1352986  
 A:Accession: JH0700  
 A:Status: nucleic acid sequence not shown  
 A:Molecule type: mRNA  
 A:Residues: 1-25 <HIL>  
 A:Cross-references: UNIPROT:P05484  
 R:Olivera, B.M.; Gray, W.R.; Zeikus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Santos  
 Science 230, 1338-1343, 1985

A:Title: Peptide neurotoxins from fish-hunting cone snails.  
 A:Reference number: A43620; MUID:86070213; PMID:4071055  
 A:Accession: C60133  
 A:Molecule type: protein  
 A:Residues: 1-25 <OLI>  
 R:Olivera, B.M.; Cruz, L.J.; de Santos, V.; LeCheminant, G.W.; Griffin, D.; Zeikus, R.; M  
 Biochemistry 26, 2086-2090, 1987

A:Title: Neuronal calcium channel antagonists. Discrimination between calcium channel su  
 A:Reference number: A34115; MUID:87299637; PMID:2441741  
 A:Contents: annotation  
 R:Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.  
 submitted to the Brookhaven Protein Data Bank, August 1996

A:Reference number: A67648; PDB:1MWI  
 A:Contents: annotation; conformation by (1)H-NMR, residues 1-25  
 R:Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.  
 J. Mol. Biol. 263, 297-310, 1996

A:Title: A consensus structure for omega-conotoxins with different selectivities for volt  
 A:Reference number: A58619; MUID:97070382; PMID:8913308  
 A:Contents: annotation; conformation by (1)H-NMR  
 R:Kohn, T.; Kim, J.I.; Kobayashi, K.; Koder, Y.; Maeda, T.; Sato, K.  
 submitted to the Brookhaven Protein Data Bank, April 1995

A:Reference number: A66296; PDB:1OMG  
 A:Contents: annotation; conformation by (1)H-NMR, residues 1-25  
 R:Kohn, T.; Kim, J.I.; Kobayashi, K.; Koder, Y.; Maeda, T.; Sato, K.  
 Biochemistry 34, 10256-10265, 1995

A:Title: Three-dimensional structure in solution of the calcium channel blocker omega-con  
 A:Reference number: A58627; MUID:95367555; PMID:7640281  
 A:Contents: annotation; conformation by (1)H-NMR  
 C:Superfamily: omega-conotoxin  
 C:Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh  
 F:1-16,8-20,15-25/Disulfide bonds: #status predicted  
 F:72/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 43.9%; Score 71.5; DB 2; Length 25;  
 Best Local Similarity 59.3%; Pred. No. 0.029;  
 Matches 16; Conservative 0; Mismatches 8; Indels 3; Gaps 2;

QY 1 CKSXGTGCSRGMRDCTCTCLLYSNKC 26  
 DB 1 CKKGAKCRLMYDCTGCTG--RSKGC 25

RESULT 5  
 S44391

metallothionein 3 - bovine  
 N:Alternate names: neuronal growth inhibitory factor  
 C:Species: Bos primigenius taurus (cattle)

C>Date: 19-Mar-1997 #sequence\_revision 19-Mar-1997 #text\_change 09-Jul-2004  
 C:Accession: S44391  
 R:Pountney, D.L.; Fundel, S.M.; Fallier, P.; Birchler, N.E.; Hunziker, P.; Vasak, M.  
 FEBS Lett. 345, 193-197, 1994  
 A>Title: Isolation, primary structures and metal binding properties of neuronal growth  
 A:Reference number: S44391; MUID:94259179; PMID:8200454  
 A:Accession: S44391  
 A>Status: preliminary  
 A:Molecule type: protein  
 A:Residues: 1-68 <POU>  
 A:Cross-references: UNIPROT:P37359  
 C:Superfamily: metallothionein

Query Match 36.2%; Score 59; DB 2; Length 68;  
 Best Local Similarity 32.1%; Pred. No. 1.7;  
 Matches 9; Conservative 4; Mismatches 15; Indels 0; Gaps 0;

QY 1 CKSXGTGTCRGMRDCTCTCLLYSNKCR 28

DB 20 CKCEGCTCASCCKSCCCPACCEKCAK 47

## RESULT 6

JH0701  
 omega-conotoxin MVIIB - cone shell (Conus magus)  
 C:Species: Conus magus (magus cone)  
 C>Date: 17-Apr-1993 #sequence\_revision 17-Apr-1993 #text\_change 09-Jul-2004  
 C:Accession: JH0701; B34115  
 R:Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadasdi, L.; Ramachandran, J.; M  
 Neuron 9, 69-77, 1992  
 A>Title: A new conus peptide ligand for mammalian presynaptic Ca2+ channels.  
 A:Reference number: JH0699; MUID:92337922; PMID:1352986  
 A:Accession: JH0701  
 A>Status: nucleic acid sequence not shown  
 A:Molecule type: mRNA  
 A:Residues: 1-25 <HIL>  
 A:Cross-references: UNIPROT:P05485  
 R:Olivera, B.M.; Cruz, L.J.; de Santos, V.; LeCheminant, G.W.; Griffin, D.; Zeikus, R.;  
 Biochemistry 26, 2086-2090, 1987  
 A>Title: Neuronal calcium channel antagonists. Discrimination between calcium channel su  
 A:Reference number: A34115; MUID:87299637; PMID:2441741  
 A:Accession: B34115  
 A:Molecule type: protein  
 A:Residues: 1-25 <OLI>  
 C:Superfamily: omega-conotoxin  
 C:Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh  
 F:1-16,8-20,15-25/bisulfide bonds: #status predicted  
 F:25/Modified site: amidated carboxyl end (Cys) #status predicted

Query Match 35.9%; Score 58.5; DB 2; Length 25;  
 Best Local Similarity 55.0%; Pred. No. 1;  
 Matches 11; Conservative 0; Mismatches 8; Indels 1; Gaps 1;

QY 1 CKSXGTGTCRGMRDCTCT-SC 19

DB 1 CKKGKASCHRTSYDCTGTSC 20

## RESULT 7

JH0699  
 omega-conotoxin MVIIC precursor [validated] - cone shell (Conus magus) (fragment)  
 C:Species: Conus magus (magus cone)  
 C>Date: 17-Apr-1993 #sequence\_revision 11-Apr-1997 #text\_change 09-Jul-2004  
 C:Accession: JH0699; PC2380  
 R:Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadasdi, L.; Ramachandran, J.; M  
 Neuron 9, 69-77, 1992  
 A>Title: A new conus peptide ligand for mammalian presynaptic Ca2+ channels.  
 A:Reference number: JH0699; MUID:92337922; PMID:1352986  
 A:Accession: JH0699  
 A:Molecule type: mRNA  
 A:Residues: 1-29 <HIL>  
 A:Cross-references: UNIPROT:P37300; GB:S40826; NID:G252126; PIDN:AAB22674.1; PID:G252127  
 R:Nemoto, N.; Kubo, S.; Yoshida, T.; Chino, N.; Kimura, T.; Sakakibara, S.; Kyogoku, Y.

Biochem. Biophys. Res. Commun. 207, 695-700, 1995  
 A>Title: Solution structure of omega-conotoxin MVIIC determined by NMR.  
 A:Reference number: PC2380; MUID:95169113; PMID:7864862  
 A:Accession: PC2380  
 A:Molecule type: protein  
 A:Residues: 3-28 <NEM>  
 R:Par-Jones, S.; Basus, V.J.  
 submitted to the Brookhaven Protein Data Bank, December 1994  
 A:Reference number: A66297; PDB:1OMN  
 A:Contents: annotation; conformation by (1)H-NMR, residues 3-28  
 R:Par-Jones, S.; Miljanich, G.P.; Nadasdi, L.; Ramachandran, J.; Basus, V.J.  
 J. Mol. Biol. 248, 106-124, 1995  
 A>Title: Solution structure of omega-conotoxin MVIIC, a high affinity of P-type calcium c  
 A:Reference number: A58582; MUID:95248539; PMID:7731037  
 A:Contents: annotation; conformation by (1)H-NMR  
 C:Superfamily: omega-conotoxin  
 C:Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh  
 F:3-28/Product: omega-conotoxin MVIIC #status experimental <MAT>  
 F:3-18,10-22,17-28/bisulfide bonds: #status experimental  
 F:28/Modified site: amidated carboxyl end (Cys) (amide in mature form from following gly

Query Match 35.6%; Score 58; DB 2; Length 29;  
 Best Local Similarity 38.5%; Pred. No. 1.3;  
 Matches 10; Conservative 2; Mismatches 14; Indels 0; Gaps 0;

QY 1 CKSXGTGTCRGMRDCTCTCLLYSNKC 26

DB 3 CKKGAPCRKTMWDCSCGCRGK 28

## RESULT 8

S58086  
 metallothionein 3 - rat  
 N:Alternate names: neurotrophic growth inhibitory factor  
 C:Species: Rattus norvegicus (Norway rat)  
 C>Date: 13-Jan-1996 #sequence\_revision 19-Apr-1996 #text\_change 09-Jul-2004  
 C:Accession: S58086; I52636  
 R:Amoureux, M.C.; Rethaus, E.; Wurch, T.; Colpaert, F.C.; Pauwels, P.J.  
 submitted to the EMBL Data Library, July 1995  
 A:Reference number: S58084  
 A:Accession: S58086  
 A>Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-66 <AMO>  
 R:Kobayashi, H.; Uchida, Y.; Ihara, Y.; Nakajima, K.; Kohsaka, S.; Miyatake, T.; Tsuji, E.  
 Brain Res. Mol. Brain Res. 12, 188-194, 1993  
 A>Title: Molecular cloning of rat growth inhibitory factor cDNA and the expression in the  
 A:Reference number: I52636; MUID:94018480; PMID:8412560  
 A:Accession: I52636  
 A>Status: preliminary; translated from GB/EMBL/DBJ  
 A:Molecule type: mRNA  
 A:Residues: 1-66 <KOB>  
 A:Cross-references: GB:S65838; NID:9425381; PIDN:AAB28366.1; PID:9425382  
 C:Superfamily: metallothionein  
 C:Keywords: acetylated amino end; chelation; metal binding; metal-thiolate cluster  
 F:1/Modified site: acetylated amino end (Met) #status predicted  
 F:6,8,14,16,20,22,25,27,30/Binding site: transition metal ions (Cys) #status predicted  
 F:34,35,37,38,42,45,49,51,62,64,65/Binding site: transition metal ions (Cys) #status pre

Query Match 35.6%; Score 58; DB 2; Length 66;  
 Best Local Similarity 32.1%; Pred. No. 2.2;  
 Matches 9; Conservative 4; Mismatches 15; Indels 0; Gaps 0;

QY 1 CKSXGTGTCRGMRDCTCTCLLYSNKCR 28

DB 20 CKKGCKCTCKKSCCCPACCEKCAK 47

## RESULT 9

I67866  
 growth inhibitory factor - mouse  
 C:Species: Mus sp. (mouse)

C>Date: 29-May-1998 #sequence\_revision 29-May-1998 #text\_change 20-Aug-1999  
 C/Accession: I67866  
 R/Naruse, S.; Igarashi, S.; Furuya, T.; Kobayashi, H.; Miyatake, T.; Tsuji, S.  
 Gene 144, 283-287, 1994  
 A>Title: Structures of the human and mouse growth inhibitory factor-encoding genes.  
 A/Reference number: I53803; MUID:94314230; PMID:8039715  
 A/Accession: I67866  
 A/Status: preliminary; translated from GB/EMBL/DBJ  
 A/Molecule type: DNA  
 A/Residues: 1-68 <RES>  
 A/Cross-references: GB:S72046; NID:g565191; PIDN:AAB31397.1; PID:g565192  
 C/Genetics: GIF  
 A:Gene: GIF  
 A:Introns: 11/1; 33/1  
 C/Suprafamily: metallothionein

Query Match 35.6%; Score 58; DB 2; Length 68;  
 Best Local Similarity 32.1%; Pred. No. 2.2;  
 Matches 9; Conservative 4; Mismatches 15; Indels 0; Gaps 0;

QY 1 CKSXGTGCSRGWRDCTCTCLLYSNKRR 28  
 DB 20 CKCKGCKTNCCKSCCCPACCEKCAK 47

RESULT 10  
 B46034  
 metallothionein 3, brain-specific - human  
 N/Alternate names: growth inhibitory factor; metallothionein MT-III  
 C/Species: Homo sapiens (man)  
 C/Date: 21-Sep-1993 #sequence\_revision 18-Nov-1994 #text\_change 09-Jul-2004  
 C/Accession: B46034; S28393; JH0463; S58084; I53803  
 R/Palmiter, R.D.; Findley, S.D.; Whitmore, T.E.; Durnam, D.M.  
 Proc. Natl. Acad. Sci. U.S.A. 89, 6333-6337, 1992  
 A>Title: MT-III, a brain-specific member of the metallothionein gene family.  
 A/Reference number: A46034; MUID:92335292; PMID:1631128  
 A/Accession: B46034  
 A/Status: preliminary  
 A/Molecule type: DNA  
 A/Residues: 1-68 <PAL>  
 A/Cross-references: UNIPROT:P25713; GB:M93311; NID:g187546; PIDN:AAA36214.1; PID:g187547  
 A/Note: sequence extracted from NCBI Backbone (NCBIN:108717, NCBIN:111117, NCBI:P:108718)  
 R/Tsuji, S.; Kobayashi, H.; Uchida, Y.; Ihara, Y.; Miyatake, T.  
 EMBO J. 11, 4843-4850, 1992  
 A>Title: Molecular cloning of human growth inhibitory factor cDNA and its down-regulation  
 A/Reference number: S28393; MUID:93099858; PMID:1464312  
 A/Accession: S28393  
 A/Status: preliminary  
 A/Molecule type: mRNA  
 A/Residues: 1-68 <TSU>  
 A/Cross-references: EMBL:D13365  
 R/Uchida, Y.; Takio, K.; Titani, K.; Ihara, Y.; Tomonaga, M.  
 Neuron 7, 337-347, 1991  
 A>Title: The growth inhibitory factor that is deficient in the Alzheimer's disease brain  
 A/Reference number: JH0463; MUID:91337462; PMID:1873033  
 A/Accession: JH0463  
 A/Status: preliminary  
 A/Molecule type: protein  
 A/Residues: 1-68 <UCH>  
 A/Note: the amino end was shown to be blocked  
 R/Amoureux, M.C.; Rethaus, E.; Wurch, T.; Colpaert, F.C.; Pauwels, P.J.  
 submitted to the EMBL Data Library, July 1995  
 A/Reference number: S58084  
 A/Accession: S58084  
 A/Status: preliminary  
 A/Molecule type: mRNA  
 A/Residues: 1-68 <AMO>  
 A/Cross-references: EMBL:X89604; NID:g914850; PIDN:CAA61763.1; PID:g914851  
 R/Naruse, S.; Igarashi, S.; Furuya, T.; Kobayashi, H.; Miyatake, T.; Tsuji, S.  
 Gene 144, 283-287, 1994  
 A>Title: Structures of the human and mouse growth inhibitory factor-encoding genes.  
 A/Reference number: I53803; MUID:94314230; PMID:8039715  
 A/Accession: I53803  
 A/Status: preliminary; translated from GB/EMBL/DBJ  
 A/Molecule type: DNA  
 A/Residues: 1-68 <RES>

A/Cross-references: GB:S72043; NID:g565189; PIDN:AAB31396.1; PID:g565190  
 C/Genetics: GIF  
 A:Gene: GDB:MT3; GIF  
 A/Cross-references: GDB:I34716; OMIM:139255  
 A/Map position: 16q13-16q13  
 A/Introns: 11/1; 33/1  
 C/Suprafamily: metallothionein  
 C/Keywords: Alzheimer's disease; blocked amino end; brain

Query Match 35.6%; Score 58; DB 2; Length 68;  
 Best Local Similarity 32.1%; Pred. No. 2.2;  
 Matches 9; Conservative 4; Mismatches 15; Indels 0; Gaps 0;

QY 1 CKSXGTGCSRGWRDCTCTCLLYSNKRR 28  
 DB 20 CKCKGCKTNCCKSCCCPACCEKCAK 47

RESULT 11  
 S44392  
 metallothionein 3 - horse  
 N/Alternate names: neuronal growth inhibitory factor  
 C/Species: Equus caballus (domestic horse)  
 C/Date: 19-Mar-1997 #sequence\_revision 19-Mar-1997 #text\_change 09-Jul-2004  
 C/Accession: S44392  
 R/Pountney, D.L.; Fundel, S.M.; Faller, P.; Birchler, N.E.; Hunziker, P.; Vasak, M.  
 FEBS Lett. 345, 193-197, 1994  
 A>Title: Isolation, primary structures and metal binding properties of neuronal growth in  
 A/Reference number: S44391; MUID:94259179; PMID:8200454  
 A/Accession: S44392  
 A/Status: preliminary  
 A/Molecule type: protein  
 A/Residues: 1-68 <POU>  
 A/Cross-references: UNIPROT:P37360  
 C/Suprafamily: metallothionein

Query Match 35.6%; Score 58; DB 2; Length 68;  
 Best Local Similarity 32.1%; Pred. No. 2.2;  
 Matches 9; Conservative 4; Mismatches 15; Indels 0; Gaps 0;

QY 1 CKSXGTGCSRGWRDCTCTCLLYSNKRR 28  
 DB 20 CKCKGCKTNCCKSCCCPACCEKCAK 47

RESULT 12  
 JC6521  
 metallothionein III - pig  
 N/Alternate names: neuron growth inhibitory factor  
 C/Species: Sus scrofa domestica (domestic pig)  
 C/Date: 21-Aug-1998 #sequence\_revision 21-Aug-1998 #text\_change 09-Jul-2004  
 C/Accession: JC6521  
 R/Wang, S.H.; Chang, C.Y.; Chen, C.F.; Tam, M.F.; Shih, Y.H.; Lin, L.Y.  
 Gene 203, 189-197, 1997  
 A>Title: Cloning of porcine neuron growth inhibitory factor (metallothionein III) cDNA ar  
 A/Reference number: JC6521; MUID:98086219; PMID:9426250  
 A/Accession: JC6521  
 A/Molecule type: mRNA  
 A/Residues: 1-68 <WAN>  
 A/Cross-references: UNIPROT:P55944; GB:U95969; NID:g2073001; PIDN:AAC39165.1; PID:g2073001  
 A/Experimental source: brain  
 C/Comment: This protein is a growth inhibitory factor, and it can be induced by metals, l  
 C/Genetics:  
 A:Gene: mtIII  
 C/Suprafamily: metallothionein  
 C/Keywords: brain; metal binding

Query Match 35.6%; Score 58; DB 2; Length 68;  
 Best Local Similarity 32.1%; Pred. No. 2.2;  
 Matches 9; Conservative 4; Mismatches 15; Indels 0; Gaps 0;

QY 1 CKSXGTGCSRGWRDCTCTCLLYSNKRR 28  
 DB 20 CKCKGCKTNCCKSCCCPACCEKCAK 47

Dbl 20 CKCEGCKTSCCKSCSCCCPABCEKCAK 47

RESULT 13

A46034

metallothionein 3, brain-specific - mouse

N/Alternate names: neurotrophic growth inhibitory factor

C/Species: Mus musculus (house mouse)

C/Date: 21-Sep-1993 #sequence\_revision 18-Nov-1994 #text\_change 09-Jul-2004

C/Accession: A46034

R/Palmiter, R.D.; Findley, S.D.; Whitmore, T.E.; Durnam, D.M.

Proc. Natl. Acad. Sci. U.S.A. 89, 6333-6337, 1992

A/Title: MT-III, a brain-specific member of the metallothionein gene family.

A/Reference number: A46034; MUID:92335292; PMID:1631128

A/Accession: A46034

A/Status: preliminary

A/Molecule type: DNA

A/Residues: 1-68 <PAL>

A/Cross-references: UNIPROT:P28184; GB:M93310; NID:gl99133; PIDN:AAA39529.1; PID:gl99134

A/Note: sequence extracted from NCBI backbone (NCBIN:108715, NCBIN:111115, NCBIP:108716)

C/Superfamily: metallothionein

Query Match 35.6%; Score 58; DB 2; Length 68;

Best Local Similarity 32.1%; Pred. No. 2.2;

Matches 9; Conservative 4; Mismatches 15; Indels 0; Gaps 0;

QY 1 CKSXGTXCGRGMRDCTCTCLLYSNKRR 28

DB 20 CKCKGCKTCKCKSCSCCCPABCEKCAK 47

RESULT 14

C44379

omega-conotoxin SVIB [validated] - cone shell (Conus striatus)

N/Alternate names: SNX-183

C/Species: Conus striatus (striated cone)

C/Date: 31-Dec-1993 #sequence\_revision 31-Dec-1993 #text\_change 15-Sep-2000

C/Accession: C44379

R/Ramilo, C.A.; Zafaralla, G.C.; Nadasdi, L.; Hammerland, L.G.; Yoshikami, D.; Gray, W.R.

Biochemistry 31, 9919-9926, 1992

A/Title: Novel alpha- and omega-conotoxins from Conus striatus venom.

A/Reference number: A44379; MUID:93003172; PMID:1390774

A/Accession: C44379

A/Molecule type: protein

A/Residues: 1-26 <RAM>

A/Cross-references: CAS:143306-19-8

A/Experimental source: venom

A/Note: sequence extracted from NCBI backbone (NCBIP:116002); structure confirmed by ch

R/Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.

submitted to the Brookhaven Protein Data Bank, August 1996

A/Reference number: A67649; PDB:1MVJ

A/Contents: annotation; conformation by (1)H-NMR, residues 1-26

R/Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.

J. Mol. Biol. 263, 297-310, 1996

A/Title: A consensus structure for omega-conotoxins with different selectivities for vol

A/Reference number: A58619; MUID:97070382; PMID:8913308

A/Contents: annotation; conformation by (1)H-NMR

C/Comment: This omega-conotoxin blocks presynaptic calcium channels.

C/Superfamily: omega-conotoxin

C/Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh

F/1-16,8-20,15-26/bisulfide bonds: #status predicted

F/26/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 34.4%; Score 56; DB 2; Length 26;

Best Local Similarity 38.5%; Pred. No. 2.1;

Matches 10; Conservative 2; Mismatches 14; Indels 0; Gaps 0;

QY 1 CKSXGTXCGRGMRDCTCTCLLYSNKC 26

DB 1 CKLKGSCFKTSYDCSCGSGRSGKC 26

RESULT 15

T37518

probable transcription regulator, binuclear cluster zinc-finger - fission yeast (Schizos

C/Species: Schizosaccharomyces pombe

C/Date: 03-Dec-1999 #sequence\_revision 03-Dec-1999 #text\_change 09-Jul-2004

C/Accession: T37518

R/Connor, R.; Churcher, C.M.; Barrell, B.G.; Rajandream, M.A.; Walsh, S.V.

submitted to the EMBL Data Library, December 1995

A/Reference number: Z21720

A/Accession: T37518

A/Status: preliminary; translated from GB/EMBL/DDBJ

A/Molecule type: DNA

A/Residues: 1-603 <CON>

A/Cross-references: UNIPROT:Q10086; EMBL:Z68166; PIDN:CAA92308.2; GSPDB:GN00066; SPDB:SP

C/Experimental source: strain 972h-; cosmid c11D3

C/Genetics:

A/Gene: SPDB:SPAC11D3.07c

A/Map position: 1

A/Introns: 60/2

F/2-39/Domain: GAL4 zinc binuclear cluster homology <GL4>

Query Match 32.8%; Score 53.5; DB 2; Length 603;

Best Local Similarity 39.4%; Pred. No. 30;

Matches 13; Conservative 2; Mismatches 13; Indels 5; Gaps 1;

QY 1 CKSXGTXCGRGMRDCTCTCLLYSNKRR 28

DB 10 CRLKKIKCSRGOPRCQTCTLFOADCHYSNRAR 42

Search completed: March 22, 2005, 22:54:19

Job time : 16.2706 secs

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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:45:36 ; Search time 77.429 Seconds  
(without alignments)  
191.792 Million cell updates/sec

Title: US-09-787-082A-15  
Perfect score: 163  
Sequence: 1 CKSXTGCSRGWRDCTSCLLYSNKCRRY 29

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : UniProt\_03.\*  
1: uniprot\_sprot.\*  
2: uniprot\_trembl.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	157	96.3	29	1 CX07 CONGE	P05483 conus geogr
2	73	44.8	73	1 CX06 CONGE	P01522 conus geogr
3	72	44.2	26	1 CX06 CONTU	P58915 conus tulip
4	71.5	43.9	71	1 CX0A CONNA	P05484 conus magus
5	69	42.3	27	1 CX06 CONRA	P58914 conus radia
6	68	41.7	26	1 CX0C CONCT	P58919 conus catus
7	65.5	40.2	66	2 Q9N625	P9N625 conus catus
8	65.5	40.2	66	2 Q9N628	P9N628 conus catus
9	65.5	40.2	66	2 Q9NCW2	P9NCW2 conus catus
10	64.5	39.6	66	2 Q9NCW1	P58917 conus catus
11	64.5	39.6	66	2 Q9NCW1	P58920 conus catus
12	64.5	39.6	73	1 CX0D CONCT	P9NCV6 conus catus
13	63.5	39.0	66	2 Q9NCV6	P9NCV6 conus catus
14	63	38.7	35	1 AD01 AGRDO	P58608 agriosphodr
15	63	38.7	36	1 I0B1 ISYOB	P58609 isyndus obs
16	62.5	38.3	66	2 Q9N6N6	P9N6N6 conus stria
17	62.5	38.3	66	2 Q9NCU1	P9NCU1 conus stria
18	62.5	38.3	66	2 Q9NCV0	P9NCV0 conus stria
19	62.5	38.3	66	2 Q9NCV4	P9NCV4 conus stria
20	61	37.4	72	2 Q9NCU8	P9NCU8 conus stria
21	61	37.4	72	2 Q9NCU9	P9NCU9 conus stria
22	61	37.4	77	1 CX05 CONST	P9NCU9 conus stria
23	60.5	37.1	66	2 Q9NCV3	P58916 conus congo
24	60.5	37.1	66	2 Q9N633	P9N633 conus catus
25	60.5	37.1	66	2 Q9NCV1	P9NCV1 conus stria
26	60.5	37.1	66	2 Q9NCV2	P9NCV2 conus stria
27	60.5	37.1	66	2 Q9NCV3	P9NCV3 conus stria
28	60.5	37.1	66	2 Q9NCW3	P9NCW3 conus catus
29	60.5	37.1	66	2 Q9NCW5	P9NCW5 conus catus
30	60.5	37.1	66	2 Q9NCW6	P9NCW6 conus catus
31	60.5	37.1	71	1 CX03 CONST	P9NCW6 conus stria

32	59	36.2	68	1 MT3 BOVIN	P37359 bos taurus
33	59	36.2	115	1 CVP5 PIMHY	Q8C0W1 pimla hypo
34	58.5	35.9	25	1 CX0B CONNA	P05485 conus magus
35	58	35.6	29	1 CX0C CONNA	P37300 conus magus
36	58	35.6	66	1 MT3 RAT	P37361 rattus norv
37	58	35.6	68	1 MT3 HORSE	P37360 equus cabal
38	58	35.6	68	1 MT3 HUMAN	P25713 homo sapien
39	58	35.6	68	1 MT3 MOUSE	P28184 mus musculu
40	58	35.6	68	1 MT3 PIG	P55944 sus scrofa
41	57.5	35.3	25	1 CX0B CONCT	P58918 conus catus
42	57.5	35.3	48	1 HSP1 RHIHA	Q8WNZ6 rhinopoma h
43	56.5	34.7	66	2 Q9NCV5	Q9NCV5 conus catus
44	56	34.4	72	1 CX0B CONST	P28881 conus stria
45	56	34.4	791	2 Q7QXT2	Q7QXT2 giardia lam

ALIGNMENTS

RESULT 1  
CX07 CONGE STANDARD; PRT; 29 AA.  
ID CX07 CONGE STANDARD; PRT; 29 AA.  
AC P05483;  
DT 01-NOV-1988 (Rel. 09, Created)

DT 01-NOV-1988 (Rel. 09, Last sequence update)  
DT 25-OCT-2004 (Rel. 45, Last annotation update)  
DE Omega-conotoxins GVIIA/GVIIIB (Shaker peptides GVIIA/GVIIIB) (SNX-178).  
OS Conus geographus (Geography cone).

OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.

OX NCBI\_TaxID=6491;  
RN [1]

RP SEQUENCE.

RX MEDLINE=86070213; PubMed=4071055;

RA Oliveira B.M., Gray W.R., Zeikus R.D., McIntosh J.M., Varga J.,

RA Rivier J.E., de Santos V., Cruz L.J.;

RT "Peptide neurotoxins from fish-hunting cone snails.";

RL Science 230:1338-1343(1985).

CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind and block voltage-sensitive calcium channels (VSCC).

CC -!- SUBCELLULAR LOCATION: Secreted.

CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.

CC -!- MISCELLANEOUS: The sequence shown is that of conotoxin GVIIA.

CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type family.

DR PIR; A43620; A43620.

DR PIR; B43620; B43620.

KW Calcium channel inhibitor; Direct protein sequencing; Hydroxylation;

KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Toxin.

FT MOD RES 4 4 4 4-hydroxyproline.

FT MOD RES 7 7 4-hydroxyproline.

FT DISULFID 1 16

FT DISULFID 8 19

FT DISULFID 15 26

FT VARIANT 21 21

FT SEQUENCE 29 AA; 3290 MW; 57307C69583FB1E7 CRC64;

L -> S (in GVIIIB).

Query Match 96.3%; Score 157; DB 1; Length 29;

Best Local Similarity 93.1%; Pred. No. 1.7e-13; Indels 0; Gaps 0;

Matches 27; Conservative 0; Mismatches 2;

OY 1 CKSXTGCSRGWRDCTSCLLYSNKCRRY 29

DB 1 CKSPTGCSRGWRDCTSCLLYSNKCRRY 29

RESULT 2

CX06 CONGE STANDARD; PRT; 73 AA.  
ID CX06 CONGE STANDARD; PRT; 73 AA.

AC P01522;

DT 21-JUL-1986 (Rel. 01, Created)

DT 01-FEB-1994 (Rel. 28, Last sequence update)

DT 25-OCT-2004 (Rel. 45, Last annotation update)  
DE Omega-conotoxin GVIA precursor (Shaker peptide) (SNX-124) [Contains:  
DE Omega-conotoxin GVIB, Omega-conotoxin GVIC].  
OS Conus geographus (Geography cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbeconcha; Hypogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=6491;  
RN [1]  
RN SEQUENCE FROM N.A.  
RX MEDLINE=93069266; PubMed=1440648; DOI=10.1016/0041-0101(92)90056-B;  
RA Colledge C.J., Hunsperger J.P., Imperial J.S., Hillyard D.R.;  
RT "Precursor structure of omega-conotoxin GVIA determined from a cDNA  
RT clone.";  
RL Toxicon 30:1111-1116(1992).  
RN [2]  
RN SEQUENCE OF 46-72 (GVIA).  
RX MEDLINE=85072796; PubMed=6509012;  
RA Olivera B.M., McIntosh J.M., Cruz L.J., Luque F.A., Gray W.R.;  
RT "Purification and sequence of a presynaptic peptide toxin from Conus  
RT geographus venom.";  
RL Biochemistry 23:5087-5090(1984).  
RN [3]  
RN SEQUENCE OF 46-73 (GVIB AND GVIC).  
RX MEDLINE=86070213; PubMed=4071055;  
RA Olivera B.M., Gray W.R., Zeikus R.D., McIntosh J.M., Varga J.,  
RA Rivier J.E., de Santos V., Cruz L.J.;  
RT "Peptide neurotoxins from fish-hunting cone snails.";  
RL Science 230:1338-1343(1985).  
RN [4]  
RN SYNTHESIS OF GVIA, AND DISULFIDE BONDS.  
RX MEDLINE=8704928; PubMed=3779030;  
RA Nishiuchi Y., Kunagaye K., Noda Y., Watanabe T.X., Sakakibara S.;  
RT "Synthesis and secondary-structure determination of omega-conotoxin  
RT GVIA: a 27-peptide with three intramolecular disulfide bonds.";  
RL Biopolymers 25:S61-S68(1986).  
RN [5]  
RN MUTAGENESIS OF LYS-47; ARG-62; LYS-69 AND ARG-70.  
RX MEDLINE=93356803; PubMed=8394704;  
RA Sato K., Park N.G., Kohno T., Maeda T., Kim J.I., Kato R.,  
RA Takahashi M.;  
RT "Role of basic residues for the binding of omega-conotoxin GVIA to N-  
RT type calcium channels.";  
RL Biochem. Biophys. Res. Commun. 194:1292-1296(1993).  
RN [6]  
RN MUTAGENESIS OF TYR-58.  
RX MEDLINE=95014108; PubMed=7329033;  
RA Kim J.I., Takahashi M., Ogura A., Kohno T., Kudo Y., Sato K.;  
RT "Hydroxyl group of Tyr13 is essential for the activity of omega-  
RT conotoxin GVIA, a peptide toxin for N-type calcium channel.";  
RL J. Biol. Chem. 269:23876-23878(1994).  
RN [7]  
RN SYNTHESIS, MUTAGENESIS OF LYS-47; TYR-58; ARG-62; TYR-67 AND LYS-69,  
RN AND STRUCTURE BY NMR.  
RX MEDLINE=97277345; PubMed=9115267; DOI=10.1074/jbc.272.18.12014;  
RA Lew M.J., Plim J.P., Pallaghy P.K., Murphy R., Whorlow S.L.,  
RA Wright C.E., Norton R.S., Angus J.A.;  
RT "Structure-function relationships of omega-conotoxin GVIA. Synthesis,  
RT structure, calcium channel binding, and functional assay of alanine-  
RT substituted analogues.";  
RL J. Biol. Chem. 272:12014-12023(1997).  
RN [8]  
RN STRUCTURE BY NMR OF GVIA.  
RX MEDLINE=93282829; PubMed=8343203;  
RA Sevilla P., Bruix M., Santoro J., Gago F., Garcia A.G., Rico M.;  
RT "Three-dimensional structure of omega-conotoxin GVIA determined by 1H  
RT NMR.";  
RL Biochem. Biophys. Res. Commun. 192:1238-1244(1993).  
RN [9]  
RN STRUCTURE BY NMR OF GVIA.  
RX MEDLINE=93332945; PubMed=8338837;  
RA Davis J.H., Bradley E.K., Miljanich G.P., Nadasdi L., Ramachandran J.,  
RA Basus V.J.;  
RT "Solution structure of omega-conotoxin GVIA using 2-D NMR spectroscopy  
RT and relaxation matrix analysis.";  
RL Biochemistry 32:7396-7405(1993).  
RN [10]  
RN STRUCTURE BY NMR OF GVIA.  
RX MEDLINE=94047089; PubMed=8230223;  
RA Pallaghy P.K., Duggan B.M., Pennington M.W., Norton R.S.;  
RT "Three-dimensional structure in solution of the calcium channel  
RT blocker omega-conotoxin.";  
RL J. Mol. Biol. 234:405-420(1993).  
RN [11]  
RN STRUCTURE BY NMR OF GVIA.  
RX MEDLINE=94073074; PubMed=8251934;  
RA Skolicky J.J., Metzler W.J., Ciesla D.J., Galdes A., Pardi A.;  
RT "Solution structure of the calcium channel antagonist omega-conotoxin  
RT GVIA.";  
RL Protein Sci. 2:1591-1603(1993).  
RN [12]  
RN STRUCTURE BY NMR OF GVIA.  
RX MEDLINE=99248506; PubMed=10231724;  
RA Pallaghy P.K., Norton R.S.;  
RT "Refined solution structure of omega-conotoxin GVIA: implications for  
RT calcium channel binding.";  
RL J. Pept. Res. 53:343-351(1999).  
RN [13]  
RN REVIEW.  
RX MEDLINE=20283152; PubMed=10822250;  
RX DOI=10.1002/(SICI)1099-1352(200003/04)13:2<55::AID-JMR488>3.0.CO;2-O;  
RA Nielsen K.J., Schroeder T., Lewis R.;  
RT "Structure-activity relationships of omega-conotoxins at N-type  
RT voltage-sensitive calcium channels.";  
RL J. Mol. Recognit. 13:55-70(2000).  
CC -|- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind  
CC and block voltage-sensitive calcium channels (VSCC).  
CC -|- SUBCELLULAR LOCATION: Secreted.  
CC -|- TISSUE SPECIFICITY: Expressed by the venom duct.  
CC -|- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type  
CC family.  
CC  
CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
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CC use by non-profit institutions as long as its content is in no way  
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CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
CC -----  
CC EMBL; M84612; AAA81590.1; -.  
CC PIR; A44006; NTKN6G.  
CC PDB; 1OMC; NMR; @=46-73.  
CC PDB; 2CCO; NMR; @=46-73.  
CC InterPro; IPR004214; Conotoxin.  
CC Pfam; PF02950; Conotoxin; 1.  
CC 3D-structure; Amidation; Calcium channel inhibitor;  
CC Direct protein sequencing; Hydroxylation; Ionic channel inhibitor;  
CC Neurotoxin; Presynaptic neurotoxin; Signal; Toxin.  
CC SIGNAL 1 22 Potential.  
CC PROPEP 23 45 Omega-conotoxin GVIB.  
CC PEPTIDE 46 73 Omega-conotoxin GVIA.  
CC PEPTIDE 46 71 Omega-conotoxin GVIC.  
CC MOD\_RES 49 49 4-hydroxyproline.  
CC MOD\_RES 55 55 4-hydroxyproline.  
CC MOD\_RES 66 66 4-hydroxyproline.  
CC MOD\_RES 72 72 Tyrosine amide (G-73 provides amide  
CC group) (in omega-conotoxin GVIA).  
CC DISULFID 46 61  
CC DISULFID 53 64  
CC DISULFID 60 71  
CC MUTAGEN 47 47 K->A: Strong decrease in activity.  
CC MUTAGEN 58 58 Y->A: Strong decrease in activity.  
CC MUTAGEN 58 58 Y->P: Decrease in affinity.  
CC MUTAGEN 62 62 R->A: Decrease in potency, but not in





CC similarity). This toxin blocks N-, P-, and Q-type calcium channels.  
 CC - SUBCELLULAR LOCATION: Secreted.  
 CC - TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC - SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type family.  
 CC HSP; P05484; 1D4.  
 KW Amidation; Calcium channel inhibitor; Direct protein sequencing;  
 KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Toxin.  
 FT DISULFID 1 16 By similarity.  
 FT DISULFID 8 20 By similarity.  
 FT DISULFID 15 26 By similarity.  
 FT MOD\_RES 26 26 Cysteine amide.  
 SQ SEQUENCE 26 AA; 2790 MW; 58EF3382335C4A8B CRC64;

Query Match 41.7%; Score 68; DB 1; Length 26;  
 Best Local Similarity 46.2%; Pred. No. 0.06;  
 Matches 12; Conservative 1; Mismatches 13; Indels 0; Gaps 0;

QY 1 CKSXGTXCSRGMRDCTSCLLYSNKC 26  
 |||||:|||||  
 DB 1 CKKGQSCSKLMYDCTGTGSCSRGKC 26

## RESULT 7

ID Q9N625 PRELIMINARY; PRT; 66 AA.  
 AC Q9N625;  
 DT 01-OCT-2000 (TREMBlrel. 15, Created)  
 DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)  
 DT 05-JUL-2004 (TREMBlrel. 27, Last annotation update)  
 DE Four-loop conotoxin (Fragment).  
 OS Conus catus (Cat cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174228; AAF89892.1; -.  
 DR EMBL; AF174222; AAF89886.1; -.  
 DR EMBL; AF174224; AAF89888.1; -.  
 DR EMBL; AF174225; AAF89889.1; -.  
 DR EMBL; AF174221; AAF89885.1; -.  
 DR HSP; P05484; 1FEO.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 DR GO; GO:0009405; P:pathogenesis; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 FT NON\_TER 1  
 SQ SEQUENCE 66 AA; 7056 MW; EAL1338A6968B7DA CRC64;

Query Match 40.2%; Score 65.5; DB 2; Length 66;  
 Best Local Similarity 51.9%; Pred. No. 0.28;  
 Matches 14; Conservative 1; Mismatches 9; Indels 3; Gaps 2;

QY 1 CKSXGTXCSRGMRDCTSCLLYSNKC 26  
 |||||:|||||  
 DB 41 CKSTGASCRRTSYDCTGTGSC--RSGRG 65

## RESULT 8

ID Q9N628 PRELIMINARY; PRT; 66 AA.  
 AC Q9N628;  
 DT 01-OCT-2000 (TREMBlrel. 15, Created)  
 DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)  
 DT 05-JUL-2004 (TREMBlrel. 27, Last annotation update)  
 DE Four-loop conotoxin (Fragment).  
 OS Conus catus (Cat cone).

OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174229; AAF89893.1; -.  
 DR EMBL; AF174226; AAF89890.1; -.  
 DR HSP; P05484; 1FEO.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 DR GO; GO:0009405; P:pathogenesis; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 FT NON\_TER 1  
 SQ SEQUENCE 66 AA; 7057 MW; E7AA5E310968B7DA CRC64;

Query Match 40.2%; Score 65.5; DB 2; Length 66;  
 Best Local Similarity 51.9%; Pred. No. 0.28;  
 Matches 14; Conservative 1; Mismatches 9; Indels 3; Gaps 2;

QY 1 CKSXGTXCSRGMRDCTSCLLYSNKC 26  
 |||||:|||||  
 DB 41 CKSTGASCRRTSYDCTGTGSC--RSGRG 65

## RESULT 9

ID Q9NCW2 PRELIMINARY; PRT; 66 AA.  
 AC Q9NCW2;  
 DT 01-OCT-2000 (TREMBlrel. 15, Created)  
 DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)  
 DT 01-OCT-2003 (TREMBlrel. 25, Last annotation update)  
 DE Four-loop conotoxin (Fragment).  
 OS Conus catus (Cat cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174223; AAF89887.1; -.  
 DR HSP; P05484; 1FEO.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 DR GO; GO:0009405; P:pathogenesis; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 FT NON\_TER 1  
 SQ SEQUENCE 66 AA; 7026 MW; EAL1339E382DB7DA CRC64;

Query Match 40.2%; Score 65.5; DB 2; Length 66;  
 Best Local Similarity 51.9%; Pred. No. 0.28;  
 Matches 14; Conservative 1; Mismatches 9; Indels 3; Gaps 2;

QY 1 CKSXGTXCSRGMRDCTSCLLYSNKC 26  
 |||||:|||||  
 DB 41 CKSTGASCRRTSYDCTGTGSC--RSGRG 65

## RESULT 10

ID CXOA CONCT STANDARD; PRT; 71 AA.  
 AC P58917;  
 DT 28-FEB-2003 (Rel. 41, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Omega-conotoxin CVIA precursor.  
 OS Conus catus (Cat cone).

OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;  
 RN [1]  
 RP SEQUENCE FROM N.A., SEQUENCE OF 46-70, AND SYNTHESIS.  
 RC TISSUE=Venom, and Venom duct;  
 RX MEDLINE=20519630; PubMed=10938268; DOI=10.1074/jbc.M002252200;  
 RA Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,  
 RA Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,  
 RA Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;  
 RT "Novel omega-conotoxins from *Conus catus* discriminate among neuronal  
 calcium channel subtypes.";  
 RL J. Biol. Chem. 275:35335-35344 (2000).  
 CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind  
 and block voltage-sensitive calcium channels (VSCC) (By  
 similarity). This toxin blocks N-type calcium channels.  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type  
 family.  
 CC HSSP; P05484; 1FE0.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 KW Amidation; Calcium channel inhibitor; Direct protein sequencing;  
 KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Signal;  
 KW Toxin.  
 FT SIGNAL 1 22 Potential.  
 FT PROPEP 23 45  
 FT PEPTIDE 46 70 Omega-conotoxin CVIA.  
 FT DISULFID 46 61 By similarity.  
 FT DISULFID 53 65 By similarity.  
 FT DISULFID 60 70 By similarity.  
 FT MOD\_RES 70 70 Cysteine amide (G-71 provides amide  
 group).  
 FT SEQUENCE 71 AA; 7665 MW; B99D9C7C74996D01 CRC64;  
 SQ  
 Query Match 40.2%; Score 65.5; DB 1; Length 71;  
 Best Local Similarity 51.9%; Pred. No. 0.3;  
 Matches 14; Conservative 1; Mismatches 9; Indels 3; Gaps 2;  
 OY 1 CKSXGTGCSRGMRDCT-SCLLYSNKC 26  
 DB 46 CKSTGASCRTPYDCTGSC--RSGR 70  
 RESULT 11  
 Q9NCW1 PRELIMINARY; PRT; 66 AA.  
 AC Q9NCW1;  
 DT 01-OCT-2000 (TRENBLrel. 15, Created)  
 DT 01-OCT-2000 (TRENBLrel. 15, Last sequence update)  
 DT 01-OCT-2003 (TRENBLrel. 25, Last annotation update)  
 DE Four-loop conotoxin (Fragment).  
 OS *Conus catus* (Cat cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174227; AAF89891.1; -.  
 DR HSSP; P05484; 1FE0.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 DR GO; GO:0009405; P:patogenesis; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 DR NON\_TER 1  
 FT SEQUENCE 66 AA; 7066 MW; EAll338A6968B415 CRC64;  
 SQ  
 Query Match 39.6%; Score 64.5; DB 2; Length 66;  
 Best Local Similarity 51.9%; Pred. No. 0.38;  
 Matches 14; Conservative 1; Mismatches 9; Indels 3; Gaps 2;  
 OY 1 CKSXGTGCSRGMRDCT-SCLLYSNKC 26  
 DB 41 CKSTGASCRTPYDCTGSC--RSGR 65  
 RESULT 12  
 CXOD\_CONCT STANDARD; PRT; 73 AA.  
 ID CXOD\_CONCT  
 AC P58920;  
 DT 28-FEB-2003 (Rel. 41, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Omega-conotoxin CVID precursor.  
 OS *Conus catus* (Cat cone).  
 OC Apogastropoda; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;  
 RN [1]  
 RP SEQUENCE FROM N.A., SEQUENCE OF 46-72, SYNTHESIS, AND STRUCTURE BY  
 NMR.  
 RC TISSUE=Venom, and Venom duct;  
 RX MEDLINE=20519630; PubMed=10938268; DOI=10.1074/jbc.M002252200;  
 RA Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,  
 RA Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,  
 RA Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;  
 RT "Novel omega-conotoxins from *Conus catus* discriminate among neuronal  
 calcium channel subtypes.";  
 RL J. Biol. Chem. 275:35335-35344 (2000).  
 CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind  
 and block voltage-sensitive calcium channels (VSCC) (By  
 similarity). This toxin blocks N-type calcium channels.  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type  
 family.  
 CC HSSP; P05484; 1DW4.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 KW Amidation; Calcium channel inhibitor; Direct protein sequencing;  
 KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Signal;  
 KW Toxin.  
 FT SIGNAL 1 22 Potential.  
 FT PROPEP 23 45  
 FT PEPTIDE 46 72 Omega-conotoxin CVID.  
 FT DISULFID 46 61 By similarity.  
 FT DISULFID 53 65 By similarity.  
 FT DISULFID 60 72 By similarity.  
 FT MOD\_RES 72 72 Cysteine amide (G-73 provides amide  
 group).  
 FT SEQUENCE 73 AA; 7748 MW; C4CEBD30C77DAEC3 CRC64;  
 SQ  
 Query Match 39.6%; Score 64.5; DB 1; Length 73;  
 Best Local Similarity 48.1%; Pred. No. 0.41;  
 Matches 13; Conservative 3; Mismatches 10; Indels 1; Gaps 1;  
 OY 1 CKSXGTGCSRGMRDCT-SCLLYSNKC 26  
 DB 46 CKSRGAKCSKLMYDCSCSGSGTGVRC 72  
 RESULT 13  
 Q9NCV6 PRELIMINARY; PRT; 66 AA.  
 ID Q9NCV6  
 AC Q9NCV6;  
 DT 01-OCT-2000 (TRENBLrel. 15, Created)  
 DT 01-OCT-2000 (TRENBLrel. 15, Last sequence update)  
 DT 01-OCT-2003 (TRENBLrel. 25, Last annotation update)  
 DE Four-loop conotoxin (Fragment).

```

OS Conus catus (Cat cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=101291;
RN [1]_
RP SEQUENCE FROM N.A.
RA Duda T.F., Palumbi S.R.;
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF174237; AAF89901.1; -.
DR HSSP; P05484; 1FEO.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0008200; P:ion channel inhibitor activity; IEA.
DR GO; GO:0009405; P:pachyogenesis; IEA.
DR InterPro; IPR004214; Conotoxin.
DR Pfam; PF02950; Conotoxin; 1.
FT NON_TER 1
SQ SEQUENCE 66 AA; 7084 MW; EA11338A68C617DA CRC64;

Query Match 39.0%; Score 63.5; DB 2; Length 66;
Best Local Similarity 60.0%; Pred. No. 0.51;
Matches 12; Conservative 0; Mismatches 7; Indels 1; Gaps 1;

QY 1 CKSXGTXCSRGWRDCC--TSCLLYSNKC 19
DB 41 CKSTGASCRRTSDCTGSC 60

RESULT 14
AD01_AGRDO STANDARD; PRT; 35 AA.
AC P58608;
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 25-OCT-2004 (Rel. 45, Last annotation update)
DE Toxin Adol.
OS Agriosphodrus dohrni (Assassin bug).
OC Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
OC Neoptera; Paraneoptera; Hemiptera; Euhemiptera; Heteroptera;
OC Panheteroptera; Cimicomorpha; Reduviidae; Harpactorinae;
OC Agriosphodrus.
OX NCBI_TaxID=184613;
RN [1]
RP SEQUENCE, AND MASS SPECTROMETRY.
RC TISSUE=Saliva;
RX MEDLINE=21316029; PubMed=11423127; DOI=10.1016/S0014-5793(01)02558-3;
RA Corzo G., Adachi-Akahane S., Nagao T., Kusui Y., Nakajima T.;
RT "Novel peptides from assassin bugs (Hemiptera: Reduviidae): isolation, chemical and biological characterization.";
RL FEBS Lett. 499:256-261(2001).
CC -|- FUNCTION: Binds reversibly and blocks P/Q-type voltage-gated calcium channels (By similarity).
CC -|- SUBCELLULAR LOCATION: Secreted.
CC -|- TISSUE SPECIFICITY: Produced by the venomous saliva.
CC -|- MASS SPECTROMETRY: MW=3781.3; METHOD=MALDI; RANGE=1-35;
CC NOTE=Ref.1.
KW Calcium channel inhibitor; Direct protein sequencing;
KW Ionic channel inhibitor; Neurotoxin; Toxin.
FT DISULFID 6 21 By similarity.
FT DISULFID 13 26 By similarity.
FT DISULFID 20 33 By similarity.
SQ SEQUENCE 35 AA; 3787 MW; 3B83D94C6D614E88 CRC64;

Query Match 38.7%; Score 63; DB 1; Length 35;
Best Local Similarity 38.7%; Pred. No. 0.36;
Matches 10; Conservative 6; Mismatches 10; Indels 2; Gaps 1;

QY 1 CKSXGTXCSRGWRDCC--TSCLLYSNKC 26
DB 6 CLPRGSKCLGENKQCKCKTTCMFYANRC 33

STRUCTURE BY NMR, AND FUNCTION.
RP PubMed=14696181; DOI=10.1002/prot.10513;
RX Bernard C., Corzo G., Adachi-Akahane S., Fournes G., Kanemaru K.,
RA Furukawa Y., Nakajima T., Darbon H.;
RT "Solution structure of AD01, a toxin extracted from the saliva of the assassin bug, Agriosphodrus dohrni.";
RL Proteins 54:195-205(2004).
CC -|- FUNCTION: Binds reversibly and blocks P/Q-type voltage-gated calcium channels.
CC -|- SUBCELLULAR LOCATION: Secreted.
CC -|- TISSUE SPECIFICITY: Produced by the venomous saliva.
CC -|- MASS SPECTROMETRY: MW=3781.3; METHOD=MALDI; RANGE=1-35;
CC NOTE=Ref.1.
DR PDB; 1LMR; NMR; A=1-35.
KW 3D-structure; Calcium channel inhibitor; Direct protein sequencing;
KW Ionic channel inhibitor; Neurotoxin; Toxin.
FT DISULFID 5 20
FT DISULFID 12 25
FT DISULFID 19 32
SQ SEQUENCE 35 AA; 3787 MW; 3B83D94C6D614E88 CRC64;

Query Match 38.7%; Score 63; DB 1; Length 35;
Best Local Similarity 35.7%; Pred. No. 0.35;
Matches 10; Conservative 6; Mismatches 10; Indels 2; Gaps 1;

QY 1 CKSXGTXCSRGWRDCC--TSCLLYSNKC 26
DB 5 CLPRGSKCLGENKQCKCKTTCMFYANRC 32

RESULT 15
IOB1_ISYOB STANDARD; PRT; 36 AA.
ID AC P58609;
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Toxin Iobi.
OS Isyndus obesus (Assassin bug).
OC Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
OC Neoptera; Paraneoptera; Hemiptera; Euhemiptera; Heteroptera;
OC Panheteroptera; Cimicomorpha; Reduviidae; Harpactorinae; Isyndus.
OX NCBI_TaxID=184615;
RN [1]
RP SEQUENCE, AND MASS SPECTROMETRY.
RC TISSUE=Saliva;
RX MEDLINE=21316029; PubMed=11423127; DOI=10.1016/S0014-5793(01)02558-3;
RA Corzo G., Adachi-Akahane S., Nagao T., Kusui Y., Nakajima T.;
RT "Novel peptides from assassin bugs (Hemiptera: Reduviidae): isolation, chemical and biological characterization.";
RL FEBS Lett. 499:256-261(2001).
CC -|- FUNCTION: Binds reversibly and blocks N-type voltage-gated calcium channels (By similarity).
CC -|- SUBCELLULAR LOCATION: Secreted.
CC -|- TISSUE SPECIFICITY: Produced by the venomous saliva.
CC -|- MASS SPECTROMETRY: MW=3938.5; METHOD=MALDI; RANGE=1-36;
CC NOTE=Ref.1.
KW Calcium channel inhibitor; Direct protein sequencing;
KW Ionic channel inhibitor; Neurotoxin; Toxin.
FT DISULFID 6 21 By similarity.
FT DISULFID 13 26 By similarity.
FT DISULFID 20 33 By similarity.
SQ SEQUENCE 36 AA; 3944 MW; 2DB8C392FA876F3E CRC64;

Query Match 38.7%; Score 63; DB 1; Length 36;
Best Local Similarity 35.7%; Pred. No. 0.36;
Matches 10; Conservative 6; Mismatches 10; Indels 2; Gaps 1;

QY 1 CKSXGTXCSRGWRDCC--TSCLLYSNKC 26
DB 6 CLPRGSKCLGENKQCKCKTTCMFYANRC 33

Search completed: March 23, 2005, 00:16:40
Job time : 77.429 secs

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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:44:17 ; Search time 93.7954 Seconds  
(without alignments)  
119.580 Million cell updates/sec

Title: US-09-787-082A-16  
Perfect score: 163  
Sequence: 1 CKSXTGTCXGRGRCCTCLSYSNKERRY 29

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : A\_Geneseq\_16Dec04:\*  
1: Geneseq1980s:\*  
2: Geneseq1990s:\*  
3: Geneseq2000s:\*  
4: Geneseq2001s:\*  
5: Geneseq2002s:\*  
6: Geneseq2003as:\*  
7: Geneseq2003bs:\*  
8: Geneseq2004s:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	153	93.9	29	2 AAR32780	Aar32780 GVIIA one
2	153	93.9	29	2 AAW12970	Aaw12970 Omega con
3	153	93.9	29	3 AAY56476	Aay56476 Natural o
4	151	92.6	29	2 AAR39611	Aar39611 GVIIA/SNX
5	151	92.6	29	2 AAW19547	Aaw19547 Natural o
6	151	92.6	29	2 AAW72608	Aaw72608 Conus gen
7	151	92.6	29	2 AAW95567	Aaw95567 Omega-con
8	151	92.6	29	2 AAY42338	Aay42338 Omega-con
9	151	92.6	29	3 AAB14355	Aab14355 Omega-con
10	151	92.6	29	4 AAB19445	Aab19445 Primary s
11	151	92.6	29	5 AAO15123	Aao15123 Cone snai
12	151	92.6	30	2 AAR37755	Aar37755 GVIIA/SNX
13	151	92.6	55	5 ABB96643	Abb96643 Omega-con
14	146	89.6	74	5 ABB96849	Abb96849 Omega-con
15	146	89.6	74	5 ABB96641	Abb96641 Omega-con
16	144	88.3	29	2 AAR76092	Aar76092 Omega con
17	144	88.3	29	5 ABB96749	Abb96749 Omega-con
18	138	84.7	29	5 ABB96748	Abb96748 Omega-con
19	134	82.2	29	5 ABB96744	Abb96744 Omega-con
20	99	60.7	29	5 ABB96752	Abb96752 Omega-con
21	98	60.1	30	5 ABB96860	Abb96860 Omega-con
22	98	60.1	30	5 ABB96850	Abb96850 Omega-con
23	98	60.1	75	5 ABB96646	Abb96646 Omega-con
24	98	60.1	76	5 ABB96595	Abb96595 Omega-con
25	92	56.4	27	2 AAW12986	Aaw12986 Omega con

26	92	56.4	27	3 AAY56497	Aay56497 Analogue
27	92	56.4	27	3 AAB14371	Aab14371 Omega-con
28	91	55.8	27	2 AAW12996	Aaw12996 Omega con
29	91	55.8	27	2 AAW72627	Aaw72627 Conus gen
30	91	55.8	27	3 AAY56498	Aay56498 Analogue
31	91	55.8	27	3 AAB14378	Aab14378 Omega-con
32	91	55.8	27	4 AAB19464	Aab19464 Sequence
33	91	55.8	30	5 ABB96698	Abb96698 Omega-con
34	90	55.2	27	2 AAR39630	Aar39630 SNX-236.
35	90	55.2	27	2 AAR39629	Aar39629 SNX-207.
36	90	55.2	27	2 AAR37776	Aar37776 SNX-236.
37	90	55.2	27	2 AAR37775	Aar37775 SNX-207.
38	90	55.2	27	2 AAW19572	Aaw19572 SNX-236.
39	90	55.2	27	2 AAW72626	Aaw72626 Conus gen
40	90	55.2	27	2 AAW95585	Aaw95585 Analog om
41	90	55.2	27	2 AAW95586	Aaw95586 Analog om
42	90	55.2	27	4 AAB19463	Aab19463 Sequence
43	88	54.0	27	2 AAW19571	Aaw19571 SNX-207.
44	86	52.8	30	5 ABB96856	Abb96856 Omega-con
45	86	52.8	75	5 ABB96653	Abb96653 Omega-con

## ALIGNMENTS

RESULT 1  
AAR32780  
ID AAR32780 standard; peptide; 29 AA.  
XX  
AC AAR32780;  
XX  
DT 28-JUN-1993 (first entry)  
XX  
DE GVIIA omega conotoxin peptide.  
XX  
KW OCT; neuronal damage reduction; ischemia; secondary damage; stroke.  
XX  
OS Synthetic.  
XX  
PN USS189020-A.  
XX  
PD 23-FEB-1993.  
XX  
PF 02-AUG-1990; 90US-00561766.  
XX  
PR 22-NOV-1989; 89US-00440094.  
XX  
(NEUR-) NEUREX CORP.  
PA  
XX  
PI Miljanich GP, Bitner RS, Bowersox SS, Fox JA, Valentino KL;  
Yamashiro DH, Teubokawa M;  
XX  
DR WPI; 1993-085564/10.  
XX  
PT Reducing neuronal damage due to ischaemia - involves using omega  
conotoxin peptide or fragment.  
XX  
PS Disclosure; Fig 1; 32pp; English.  
XX  
CC The sequence is that of the GVIIA omega conotoxin (OCT) peptide which can  
bind to an OCT binding protein, inhibit voltage-gated calcium currents  
selectively in neuronal tissue and inhibit neuronal transmitter release  
selectively in neuronal tissue. These properties all occur within the  
range of those of WIIIB, GVIIA, RVIA, or pref. MVIIA and GVIA OCTs. The  
peptide can be used in reducing or preventing both anatomical and  
functional secondary damage related to ischemia, generally as associated  
with stroke  
XX  
SQ Sequence 29 AA;

Query Match 93.9%; Score 153; DB 2; Length 29;  
Best Local Similarity 96.6%; Pred. No. 4.3e-11;  
Matches 28; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKSXTGCSRGWRDCTCLSYSNKCRRY 29  
 DB 1 CKSXTGCSRGWRDCTCLSYSNKCRRY 29

RESULT 2  
 AA12970  
 ID AAW12970 standard; peptide; 29 AA.  
 XX AAW12970;  
 AC AAW12970;  
 DT 25-MAR-2003 (revised)  
 DT 22-APR-1997 (first entry)  
 XX Omega conopeptide SNX-178.  
 XX Omega conopeptide; analgesic; treatment; neuropathic pain; inhibition;  
 KW neuronal damage; schizophrenia; tardive dyskinesia; analgesia;  
 KW acute dystonic reactions; inflammation; epilepsy.  
 XX Synthetic.  
 XX Key Location/Qualifiers  
 FT Modified-site 4  
 FT Modified-site 7 /label= Hyp  
 FT Modified-site 7 /label= Hyp  
 FT US5587454-A.  
 XX 24-DEC-1996.  
 XX 15-APR-1993; 93US-00049794.  
 XX 30-DEC-1991; 91US-00814759.  
 XX 30-DEC-1992; 92WO-US011349.  
 XX (NEUR-) NEUREX CORP.  
 XX Gohil KC, Miljanich GP, Valentino KL, Justice A, Singh T;  
 XX WPI; 1997-064830/06.  
 XX Omega conopeptide(s) - useful as analgesics, esp. for treating  
 PT neuropathic pain.  
 XX Disclosure; Col 43-44; 58pp; English.  
 XX The present peptide is an omega conopeptide, useful as an analgesic,  
 CC especially for treating neuropathic pain. The peptide, which can be  
 CC prepared by solid phase synthesis, can also be used to inhibit neuronal  
 CC damage and treat schizophrenia, tardive dyskinesia, acute dystonic  
 CC reactions, inflammation and epilepsy. (Updated on 25-MAR-2003 to correct  
 CC PF field.)  
 XX Sequence 29 AA;  
 SQ Query Match 93.9%; Score 153; DB 2; Length 29;  
 Best Local Similarity 96.6%; Pred. No. 4.3e-11;  
 Matches 28; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKSXTGCSRGWRDCTCLSYSNKCRRY 29  
 DB 1 CKSXTGCSRGWRDCTCLSYSNKCRRY 29

RESULT 3  
 AAY56476  
 ID AAY56476 standard; peptide; 29 AA.  
 XX AAY56476;  
 AC AAY56476;  
 XX

DT 16-FEB-2000 (first entry)  
 XX Natural omega conopeptide GVIIB/SNX-178.  
 XX Omega conopeptide; analgesic; nociceptive; neuropathic; pain; conotoxin;  
 KW marine snail; peptide toxin; inflammation; binding;  
 KW voltage-gated calcium channel; inhibition; norepinephrine; noradrenaline;  
 KW anti-inflammatory.  
 XX Conus sp.  
 XX Key Location/Qualifiers  
 FT Misc-difference 4 /note= "unspecified"  
 FT Misc-difference 7 /note= "unspecified"  
 FT US5994305-A.  
 XX 30-NOV-1999.  
 XX 21-AUG-1998; 98US-00138439.  
 XX 30-DEC-1991; 91US-00814759.  
 XX 15-APR-1993; 93US-00049794.  
 XX 03-JUL-1996; 96US-00675354.  
 XX 01-NOV-1996; 96US-00742774.  
 XX (ELAN-) ELAN PHARM INC.  
 XX Justice A, Singh T, Valentino KL, Miljanich GP, Gohil KC;  
 XX WPI; 2000-038270/03.  
 XX Measuring the activity of test compounds in blocking voltage-gated  
 PT calcium channels, binding to the omega conopeptide binding site and  
 PT inhibiting norepinephrine (noradrenaline) release for treating  
 PT inflammation.  
 XX Disclosure; Fig 1; 47pp; English.  
 XX A method has been developed of selecting a test compound for treating  
 CC inflammation. The method comprises measuring the activity of the test  
 CC compound in blocking voltage-gated calcium channels, binding to the omega  
 CC conopeptide binding site and inhibiting norepinephrine (noradrenaline)  
 CC release from nervous tissue. The method is useful for selecting compounds  
 CC for treating inflammation. The selected compounds are capable of  
 CC producing analgesia in a mammalian subject with chronic or intractable  
 CC pain. Analgesia caused by selected compounds may reduce the reliance on  
 CC opioid analgesic agents of the prior art which cause dependency and  
 CC tolerance, requiring potentially dangerous increases in opioid doses to  
 CC achieve the analgesic effect. The present sequence represents an omega  
 CC conopeptide given in the present invention  
 XX Sequence 29 AA;  
 SQ Query Match 93.9%; Score 153; DB 3; Length 29;  
 Best Local Similarity 96.6%; Pred. No. 4.3e-11;  
 Matches 28; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKSXTGCSRGWRDCTCLSYSNKCRRY 29  
 DB 1 CKSXTGCSRGWRDCTCLSYSNKCRRY 29

RESULT 4  
 AAR39611  
 ID AAR39611 standard; peptide; 29 AA.  
 XX AAR39611;  
 AC AAR39611;  
 XX 25-MAR-2003 (revised)  
 DT 20-DEC-1993 (first entry)

XX Natural omega-conopeptide GVIIB/SNX-178 used for pain relief.  
DE  
XX

KW inflammation; schizophrenia; tardive dyskinesia; acute dystonic reaction;  
 KW rheumatoid arthritis; epilepsy.  
 XX Conus.

XX Key Location/Qualifiers  
 OS Modified-site 4  
 FT /label= Hyp  
 FT /note= "hydroxyproline"  
 FT Modified-site 7  
 FT /label= Hyp  
 FT /note= "hydroxyproline"

XX US5824645-A.

XX 20-OCT-1998.

XX 01-NOV-1996; 96US-00742774.

XX 30-DEC-1991; 91US-00814759.

XX 15-APR-1993; 93US-00049794.

XX 03-JUL-1996; 96US-00675354.

XX (NEUR-) NEUREX CORP.

XX Miljanich GP, Valentino KL, Gohil KC, Justice A, Singh T;

XX WPI; 1998-582596/49.

XX Treatment of inflammation, comprises administration of omega-conopeptide  
 PT - effective to block voltage-gated calcium channels, bind with high  
 PT affinity to omega-conopeptide binding site, and inhibit neuro-transmitter  
 PT release.

XX Disclosure; Fig 1; 58pp; English.

XX A method has been developed for the treatment of inflammation in a  
 CC subject. The method comprises administration of an omega-conopeptide  
 CC effective to: (i) block voltage-gated calcium channels; (ii) bind with  
 CC high affinity to an omega-conopeptide binding site; and (iii) inhibit  
 CC neurotransmitter release from nervous tissue. The method is used to treat  
 CC inflammation and associated pain. The treatment can also be used to  
 CC produce analgesia (especially in subjects experiencing neuropathic pain);  
 CC and to treat schizophrenia, tardive dyskinesia and acute dystonic  
 CC reactions, rheumatoid arthritis, and epilepsy. The present sequence  
 CC represents a natural omega-conopeptide. Omega-conopeptides are components  
 CC of peptide toxins produced by marine snails of the genus Conus, and which  
 CC act as calcium channel blockers. (Updated on 27-AUG-2003 to correct OS  
 CC field.)

XX Sequence 29 AA;

Query Match 92.6%; Score 151; DB 2; Length 29;  
 Best Local Similarity 89.7%; Pred. No. 7.4e-11;  
 Matches 26; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CKSXTGTCRGMRDCTCTSLYSNKCRRY 29  
 DB 1 CKSPGTPCGRGMRDCTCTSLYSNKCRRY 29

RESULT 7

AAW95567

ID AAW95567 standard; protein; 29 AA.

XX AAW95567;

XX 29-MAR-1999 (first entry)

XX Omega-conopeptide GVIA/SNX-178.

XX Omega-conopeptide; peptide toxin; snail; calcium channel blocker;

KW analgesia; guinea pig ileum; omega-conotoxin; pain; neuropathic.

XX Synthetic.  
 OS Conus sp.  
 XX Key Location/Qualifiers  
 FH Modified-site 4  
 FT /label= 4Hyp  
 FT /note= "4-Hydroxyproline"  
 FT Modified-site 7  
 FT /label= 4Hyp  
 FT /note= "4-Hydroxyproline"  
 FT Modified-site 29  
 FT /note= "C-terminal amide"

XX US5859186-A.

XX 12-JAN-1999.

XX 03-JUL-1996; 96US-00675354.

XX 30-DEC-1991; 91US-00814759.

XX 15-APR-1993; 93US-00049794.

XX (NEUR-) NEUREX CORP.

XX Miljanich GP, Gohil KC, Valentino KL, Justice A, Singh T;

XX WPI; 1999-120002/10.

XX Production of analgesia in mammal - by administration of omega cono-  
 PT peptide(s).

XX Disclosure; Fig 1A; 59pp; English.

XX Sequences AAW95564-573 represent primary sequences of natural omega-  
 CC conopeptides. Omega-conopeptides are components of peptide toxins  
 CC produced by marine snails of the genus Conus, and which act as calcium  
 CC channel blockers. The invention relates to a method of producing  
 CC analgesia in a mammal that comprises administering an omega conopeptide  
 CC having activities in (a) inhibiting electrically stimulated contraction  
 CC of guinea pig ileum and (b) selectively binding to omega conopeptide  
 CC MVIIA binding sites in neuronal tissue, where these activities are within  
 CC the ranges of those of omega-conotoxins MVIIA and TVIA. The method is  
 CC used for treating chronic pain, especially neuropathic pain

XX Sequence 29 AA;

Query Match 92.6%; Score 151; DB 2; Length 29;  
 Best Local Similarity 89.7%; Pred. No. 7.4e-11;  
 Matches 26; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CKSXTGTCRGMRDCTCTSLYSNKCRRY 29  
 DB 1 CKSPGTPCGRGMRDCTCTSLYSNKCRRY 29

RESULT 8

AAW42338

ID AAW42338 standard; peptide; 29 AA.

XX AAW42338;

XX 20-DEC-1999 (first entry)

XX Omega-conotoxin OCT GVIIA.

XX Calcium channel; neuron; retina; optic nerve; trauma; ischaemia; vision;  
 KW prevention.

XX Conus sp.

XX Key Location/Qualifiers

FT Disulfide-bond 1.16

FH	Key	Location/Qualifiers
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16
17	17	17
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44	44	44
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46	46	46
47	47	47
48	48	48
49	49	49
50	50	50
51	51	51
52	52	52
53	53	53
54	54	54
55	55	55
56	56	56
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 FT Modified-site 4  
 FT /label= Hyp  
 FT /note= "hydroxyproline"  
 FT Modified-site 7  
 FT /label= Hyp  
 FT /note= "hydroxyproline"  
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 FT Disulfide-bond 15. .26  
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 FT /note= "amidated C-terminal"  
 XX  
 PN US6136786-A.  
 XX  
 XX 24-OCT-2000.  
 PD  
 XX  
 XX 09-SEP-1999; 99US-00392979.  
 PF  
 XX 30-DEC-1991; 91US-00814759.  
 PR  
 PR 15-APR-1993; 93US-00049794.  
 PR  
 PR 03-JUN-1993; 93US-00081863.  
 PR 03-JUL-1996; 96US-00675354.  
 PR 01-NOV-1996; 96US-00742774.  
 PR 21-AUG-1998; 98US-00138439.  
 PR 23-APR-1999; 99US-00298017.  
 XX  
 XX (ELAN-) ELAN PHARM INC.  
 PA  
 XX Singh T, Gohil KC, Valentino KL, Miljanich GP, Justice A;  
 PI  
 XX WPI; 2001-030946/04.  
 DR  
 XX  
 XX  
 XX Enhancing analgesia produced by opiates by administering an omega-conopeptide that inhibits electrically stimulated contraction of guinea pig ileum and binds to omega-conopeptide MWIIA binding sites in neuronal tissues.  
 PT  
 PT  
 PT  
 XX Disclosure; Fig 1; 58pp; English.  
 PS  
 XX The present sequence represents an omega-conopeptide. Omega-conopeptides are components of peptide toxins which act as voltage-gated calcium channel inhibitors. The peptides are used to enhance the analgesic effect produced by an opiate in a mammalian subject. The method comprises administering to the subject an omega-conopeptide which is able to inhibit electrically stimulated contraction of the guinea pig ileum and bind to omega-conopeptide MWIIA binding sites present in neuronal tissue. Omega-conopeptides are useful for enhancing the analgesic effect produced by an opiate. Omega-conopeptides may also be used in the treatment of pain, in reducing neuronal damage related to an ischemic condition in mammals, and in treating schizophrenia, tardive dyskinesia and acute dystonic reactions, inflammation and epilepsy  
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 CC  
 XX Sequence 29 AA;  
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 Query Match 92.6%; Score 151; DB 4; Length 29;  
 Best Local Similarity 89.7%; Pred. No. 7.4e-11;  
 Matches 26; Conservative 0; Mismatches 3; Indels 0; Gaps 0;  
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 DB 1 CKSPGTPCSRGMRDCTCLSYSNKCRRY 29  
 RESULT 11  
 AA015123  
 ID AA015123 standard; peptide; 29 AA.  
 XX  
 XX AA015123;  
 XX  
 XX 22-AUG-2002 (first entry)  
 DT

XX Cone snail w-conotoxin peptide GVIIA.  
 DE  
 XX  
 XX Cone snail; venomous saliva; calcium channel blocking activity;  
 KW stenocardia; hypertension; myocarditis; arrhythmia; cerebral ischaemia;  
 KW w-conotoxin.  
 XX  
 OS Conus sp.  
 XX  
 PN JP2002080499-A.  
 XX  
 PD 19-MAR-2002.  
 XX  
 PF 01-SEP-2000; 2000JP-00266187.  
 XX  
 PR 01-SEP-2000; 2000JP-00266187.  
 XX  
 XX (SUNR ) SUNTORY LTD.  
 PA  
 XX WPI; 2002-421068/45.  
 DR  
 XX A new peptide derived from venomous saliva of assassin bug, has calcium channel blocking activity.  
 PT  
 PT  
 XX Disclosure; Page 4; 26pp; Japanese.  
 PS  
 XX The invention comprises peptides having calcium channel blocking activities which are derived from the venomous saliva of assassin bugs. The calcium channel blocking peptides of the invention are useful for treating stenocardia, hypertension, myocarditis, arrhythmia and cerebral ischaemia. The present amino acid sequence represents a cone snail w-conotoxin peptide  
 CC  
 CC  
 XX Sequence 29 AA;  
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 Query Match 92.6%; Score 151; DB 5; Length 29;  
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 AAR37755  
 ID AAR37755 standard; peptide; 30 AA.  
 XX  
 XX AAR37755;  
 AC  
 XX 25-MAR-2003 (revised)  
 DT  
 DT 08-SEP-1993 (first entry)  
 XX  
 DE GVIIA/SNX-178.  
 XX  
 XX Ischaemia; neuronal; omega-conotoxin; OCT; MWIIA; MVIIC; MVIID; MVIIB;  
 KW GVIA; GVIIA; RVIA; SVIA; TVIA; SVIB; SNX-207; stroke; delayed treatment;  
 KW antihistamine; blood pressure; N-type voltage-gated Ca currents;  
 KW N-channel mediated neurotransmitter release.  
 XX  
 OS Synthetic.  
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 FH Disulfide-bond 1. .16  
 FT Modified-site 4  
 FT /note= "hydroxyproline"  
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 FT Disulfide-bond 8. .19  
 FT Disulfide-bond 15. .26  
 XX  
 PN WO9310145-A1.  
 XX



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XX PN WO200207675-A2.
XX PD 31-JAN-2002.
XX PF 23-JUL-2001; 2001WO-US023041.
XX PR 21-JUL-2000; 2000US-0219616P.
XX PR 05-FEB-2001; 2001US-0265888P.
XX PA (UTAH ) UNIV UTAH RES FOUND.
XX PA (COGN-) COGNETIX INC.
XX PI Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
XX PI Jacobsen R, Jones RM, Cartier GE;
XX DR WPI; 2002-257318/30.
XX PT New omega-conopeptides useful for treating disorders associated with
XX PT voltage gated ion channels e.g. pain, inflammation, neurologic or
XX PT cardiovascular disorders.
XX PS Claim 1(a); Page 71; 195pp; English.
XX CC The invention relates to isolated omega-conopeptides, nucleic acid
XX CC sequences encoding them, and propeptide sequences. The activity of the
XX CC peptides of the invention may be described as, analgesic, anticonvulsant,
XX CC vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular,
XX CC antiinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary,
XX CC antipsychotic, anxiolytic and neuroleptic. Peptides of the invention act
XX CC by modulating the activity of voltage gated ion channels. They may be
XX CC used for treating or preventing disorders associated with voltage gated
XX CC ion channels such as neurological disorders, e.g. seizure (associated
XX CC with epilepsy), neurotoxic injury associated with conditions of hypoxia,
XX CC anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal
XX CC chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic
XX CC events; pain e.g. migraine; inflammation or cardiovascular disorders.
XX CC They may also be used for treating psychiatric disorders e.g. psychosis,
XX CC anxiety or schizophrenia. The analgesic agents of the invention show
XX CC diminished side effects and toxicity, and are non-addictive. The
XX CC toxin sequences
XX CC Sequence 29 AA;
XX SQ
Query Match 89.6%; Score 146; DB 5; Length 29;
Best Local Similarity 86.2%; Pred. No. 2.9e-10;
Matches 25; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKSXTGTCRGMRDCTCLSYSNKCRRY 29
DB 1 CKSPGTCRGMRDCTCLLYSNKCRRY 29

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ABB96641
ID ABB96641 standard; peptide; 74 AA.
XX AC ABB96641;
XX DT 12-JUL-2002 (first entry)
XX DE Omega-conopeptide G6.2 propeptide.
XX KW Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
XX KW neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
XX KW antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
XX KW anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
XX KW neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
XX KW stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
XX KW drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
XX KW migraine; inflammation; cardiovascular disorder; psychiatric disorder;
XX KW psychosis; anxiety; schizophrenia.

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XX OS Conus geographus.
XX PN WO200207675-A2.
XX PD 31-JAN-2002.
XX PF 23-JUL-2001; 2001WO-US023041.
XX PR 21-JUL-2000; 2000US-0219616P.
XX PR 05-FEB-2001; 2001US-0265888P.
XX PA (UTAH ) UNIV UTAH RES FOUND.
XX PA (COGN-) COGNETIX INC.
XX PI Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;
XX PI Jacobsen R, Jones RM, Cartier GE;
XX DR WPI; 2002-257318/30.
XX PT New omega-conopeptides useful for treating disorders associated with
XX PT voltage gated ion channels e.g. pain, inflammation, neurologic or
XX PT cardiovascular disorders.
XX PS Claim 1(c); Page 43; 195pp; English.
XX CC The invention relates to isolated omega-conopeptides, nucleic acid
XX CC sequences encoding them, and propeptide sequences. The activity of the
XX CC peptides of the invention may be described as, analgesic, anticonvulsant,
XX CC vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular,
XX CC antiinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary,
XX CC antipsychotic, anxiolytic and neuroleptic. Peptides of the invention act
XX CC by modulating the activity of voltage gated ion channels. They may be
XX CC used for treating or preventing disorders associated with voltage gated
XX CC ion channels such as neurological disorders, e.g. seizure (associated
XX CC with epilepsy), neurotoxic injury associated with conditions of hypoxia,
XX CC anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal
XX CC chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic
XX CC events; pain e.g. migraine; inflammation or cardiovascular disorders.
XX CC They may also be used for treating psychiatric disorders e.g. psychosis,
XX CC anxiety or schizophrenia. The analgesic agents of the invention show
XX CC diminished side effects and toxicity, and are non-addictive. The
XX CC sequences given in records ABB96595-ABB96697 represent omega-conopeptide
XX CC propeptide sequences
XX SQ
Query Match 89.6%; Score 146; DB 5; Length 74;
Best Local Similarity 86.2%; Pred. No. 6.4e-10;
Matches 25; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKSXTGTCRGMRDCTCLSYSNKCRRY 29
DB 46 CKSPGTCRGMRDCTCLLYSNKCRRY 74

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OM protein - protein search, using sw model

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Sequence: 1 CKSXTXCSRGMRDCTSLSYSNKCRRY 29

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## SUMMARIES

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1	153	93.9	29	1 US-07-789-913-4	Sequence 4, Appl
2	153	93.9	29	1 US-08-049-794-4	Sequence 4, Appl
3	153	93.9	29	1 US-08-496-847-4	Sequence 4, Appl
4	153	93.9	29	2 US-08-742-774-4	Sequence 4, Appl
5	153	93.9	29	2 US-08-675-354-4	Sequence 4, Appl
6	153	93.9	29	2 US-08-965-918-4	Sequence 4, Appl
7	153	93.9	29	2 US-09-039-168-4	Sequence 4, Appl
8	153	93.9	29	2 US-09-138-439-4	Sequence 4, Appl
9	153	93.9	29	3 US-08-613-400A-4	Sequence 4, Appl
10	153	93.9	29	3 US-09-298-017-4	Sequence 4, Appl
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15	153	93.9	29	6 5189020-4	Patent No. 5189020
16	101	62.0	27	1 US-07-789-913-21	Sequence 21, Appl
17	92	56.4	27	1 US-07-789-913-20	Sequence 20, Appl
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19	92	56.4	27	1 US-08-496-847-20	Sequence 20, Appl
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21	92	56.4	27	2 US-08-675-354-20	Sequence 20, Appl
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## ALIGNMENTS

RESULT 1  
US-07-789-913-4  
; Sequence 4, Application US/07789913  
; Patent No. 5559095  
; GENERAL INFORMATION:  
; APPLICANT: Miljanich, George P.  
; APPLICANT: Bowersox, Stephen S.  
; APPLICANT: Fox, James A.  
; APPLICANT: Valentino, Karen L.  
; APPLICANT: Bitner, Robert S.  
; APPLICANT: Yamashiro, Donald H.  
; TITLE OF INVENTION: Delayed Treatment Method of Reducing Ischemia-Related Neuronal Damage  
; NUMBER OF SEQUENCES: 28  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306

COMPUTER TYPE: Floppy disk  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/789,913  
FILING DATE: 19911112  
CLASSIFICATION: 514  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/561,766  
FILING DATE: 02-AUG-1990  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/440,094  
FILING DATE: 22-NOV-1989  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0005.30  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 4:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 29 amino acids  
TYPE: AMINO ACID  
TOPOLOGY: both  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO

; ANTI-SENSE: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: SNX-178  
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; LOCATION: 4.5  
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; OTHER INFORMATION: hydroxyproline"  
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US-07-789-913-4

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Best Local Similarity 96.6%; Pred. No. 1.7e-11;  
Matches 28; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CKSXTGCSRGWRDCTCLSYSNKCRY 29  
Db 1 CKSXTGCSRGWRDCTCLSYSNKCRY 29

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; Sequence 4, Application US/08049794  
; Patent No. 5587454  
; GENERAL INFORMATION:  
; APPLICANT: JUSTICE, ALAN  
; APPLICANT: SINGH, TEJINDER  
; APPLICANT: GOHIL, KISHOR C  
; APPLICANT: VALENTINO, KAREN L  
; APPLICANT: MILJANICH, GEORGE P  
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
; NUMBER OF SEQUENCES: 34  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
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; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/049,794  
; FILING DATE: 19930415  
; CLASSIFICATION: 514  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/814,759  
; FILING DATE: 30-DEC-1991  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0009.30  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 4:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 29 amino acids  
; TYPE: AMINO ACID  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: GVIIA/SNX-178, FIGURE 1  
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; OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-08-049-794-4

Query Match 93.9%; Score 153; DB 1; Length 29;  
Best Local Similarity 96.6%; Pred. No. 1.7e-11;  
Matches 28; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CKSXTGCSRGWRDCTCLSYSNKCRY 29  
Db 1 CKSXTGCSRGWRDCTCLSYSNKCRY 29

RESULT 3  
US-08-496-847-4  
; Sequence 4, Application US/08496847  
; Patent No. 5795864  
; GENERAL INFORMATION:  
; APPLICANT: Amstutz, Gary A.  
; APPLICANT: Powersox, Stephen S.  
; APPLICANT: Gohil, Kishorchandra  
; APPLICANT: Adriaenssens, Peter I.  
; APPLICANT: Kristipati, Ramasharma  
; TITLE OF INVENTION: METHODS AND  
; NUMBER OF SEQUENCES: 36  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Dehlinger & Associates  
; STREET: 350 Cambridge Avenue, Suite 250  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: US  
; ZIP: 94306-1546  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Diskette  
; COMPUTER: IBM Compatible  
; OPERATING SYSTEM: DOS  
; SOFTWARE: FastSeq for Windows Version 2.0  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/496,847  
; FILING DATE: 27-JUN-1995  
; CLASSIFICATION: 514  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0009.31  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 650-324-0880  
; TELEFAX: 650-324-0960  
; INFORMATION FOR SEQ ID NO: 4:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 29 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: GVIIA/SNX-178, FIGURE 1  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 4  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 7  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-08-496-847-4

Query Match 93.9%; Score 153; DB 1; Length 29;  
Best Local Similarity 96.6%; Pred. No. 1.7e-11;  
Matches 28; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKSXTXCSRGMRDCTCLSYSNKCRY 29  
DB 1 CKSXTXCSRGMRDCTCLSYSNKCRY 29

RESULT 4  
US-08-742-774-4  
; Sequence 4, Application US/08742774  
; Patent No. 5824645  
; GENERAL INFORMATION:  
; APPLICANT: JUSTICE, ALAN  
; APPLICANT: SINGH, TEJINDER  
; APPLICANT: GOHIL, KISHOR C  
; APPLICANT: VALENTINO, KAREN L  
; APPLICANT: MILJANICH, GEORGE P  
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
; NUMBER OF SEQUENCES: 34  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/742,774  
; FILING DATE:  
; CLASSIFICATION:  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 08/675,354  
; FILING DATE: 03-JUL-1996  
; APPLICATION NUMBER: US/08/049,794  
; FILING DATE: 1993-APR-15  
; APPLICATION NUMBER: US/07/814,759  
; FILING DATE: 30-DEC-1991  
; APPLICATION NUMBER: US/07/814,759  
; FILING DATE: 30-DEC-1991  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0009.30  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 4:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 29 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: GVIIA/SNX-178, FIGURE 1  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 4  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 7  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-08-742-774-4

Query Match 93.9%; Score 153; DB 2; Length 29;  
Best Local Similarity 96.6%; Pred. No. 1.7e-11;

Matches 28; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
QY 1 CKSXTXCSRGMRDCTCLSYSNKCRY 29  
DB 1 CKSXTXCSRGMRDCTCLSYSNKCRY 29

RESULT 5  
US-08-675-354-4  
; Sequence 4, Application US/08675354  
; Patent No. 5859186  
; GENERAL INFORMATION:  
; APPLICANT: JUSTICE, ALAN  
; APPLICANT: SINGH, TEJINDER  
; APPLICANT: GOHIL, KISHOR C  
; APPLICANT: VALENTINO, KAREN L  
; APPLICANT: MILJANICH, GEORGE P  
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
; NUMBER OF SEQUENCES: 34  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/675,354  
; FILING DATE: 03-JUL-1996  
; CLASSIFICATION: 530  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US/08/049,794  
; FILING DATE: 1993-APR-15  
; APPLICATION NUMBER: US/07/814,759  
; FILING DATE: 30-DEC-1991  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0009.30  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 4:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 29 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: GVIIA/SNX-178, FIGURE 1  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 4  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 7  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-08-675-354-4

Query Match 93.9%; Score 153; DB 2; Length 29;  
Best Local Similarity 96.6%; Pred. No. 1.7e-11;  
Matches 28; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKSXTXCSRGMRDCTCLSYSNKCRY 29

Db 1 CKSXTGCSRGMRDCTCTCLLYSNKCRRY 29

## RESULT 6

US-08-965-918-4

; Sequence 4, Application US/08965918

; Patent No. 5891849

; GENERAL INFORMATION:

; APPLICANT: Amstutz, Gary A.

; APPLICANT: Bowersox, Stephen S.

; APPLICANT: Gohil, Kishorchandra

; APPLICANT: Adriaenssens, Peter I.

; APPLICANT: Kristipati, Ramasharma

; TITLE OF INVENTION: METHODS AND FORMULATIONS FOR PREVENTING

; TITLE OF INVENTION: PROGRESSION OF NEUROPATHIC PAIN

; NUMBER OF SEQUENCES: 36

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Dehlinger & Associates

; STREET: 350 Cambridge Avenue, Suite 250

; CITY: Palo Alto

; STATE: CA

; COUNTRY: US

; ZIP: 94306-1546

; COMPUTER READABLE FORM:

; MEDIUM TYPE: Diskette

; COMPUTER: IBM Compatible

; OPERATING SYSTEM: DOS

; SOFTWARE: FastSeq for Windows Version 2.0

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/08/965,918

; FILING DATE: 07-NOV-1997

; CLASSIFICATION: 514

; ATTORNEY/AGENT INFORMATION:

; NAME: Mohr, Judy M.

; REGISTRATION NUMBER: 38,563

; REFERENCE/DOCKET NUMBER: 5865-0009.34

; TELECOMMUNICATION INFORMATION:

; TELEPHONE: 650-324-0880

; TELEFAX: 650-324-0960

; INFORMATION FOR SEQ ID NO: 4:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 29 amino acids

; TYPE: amino acid

; TOPOLOGY: linear

; MOLECULE TYPE: protein

; HYPOTHETICAL: NO

; ORIGINAL SOURCE:

; INDIVIDUAL ISOLATE: GVIIA/SNX-178, FIGURE 1

; FEATURE:

; NAME/KEY: Modified-site

; LOCATION: 4

; OTHER INFORMATION: /note= "where X is hydroxyproline"

; FEATURE:

; NAME/KEY: Modified-site

; LOCATION: 7

; OTHER INFORMATION: /note= "where X is hydroxyproline"

US-08-965-918-4

Query Match

Best Local Similarity 93.9%; Score 153; DB 2; Length 29;

Matches 28; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKSXTGCSRGMRDCTCTCLLYSNKCRRY 29

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Db 1 CKSXTGCSRGMRDCTCTCLLYSNKCRRY 29

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## RESULT 7

US-09-039-168-4

; Sequence 4, Application US/09039168

; Patent No. 5965534

; GENERAL INFORMATION:

; APPLICANT: Pang, Iok-Hou; Kapin, Michael and Hellberg,

; APPLICANT: Mark

; TITLE OF INVENTION: The Use of w-Conotoxin Analogs For

; TITLE OF INVENTION: Treating Retinal and Optic Nerve Head Damage

; NUMBER OF SEQUENCES: 7

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Alcon Laboratories, Inc.

; STREET: 6201 South Freeway, Patent Legal

; CITY: Fort Worth

; STATE: Texas

; COUNTRY: USA

; ZIP: 76134-2099

; COMPUTER READABLE FORM:

; MEDIUM TYPE: 1.2 mg, 3.25" floppy disk

; COMPUTER: Compaq Deskpro XE 560

; OPERATING SYSTEM: Microsoft Windows for Workgroups,

; OPERATING SYSTEM: Version 3.11

; SOFTWARE: Microsoft Word 6.0

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/09/039,168

; FILING DATE:

; CLASSIFICATION:

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: 08/562,142

; FILING DATE: No. 5965534ember 22, 1995

; ATTORNEY/AGENT INFORMATION:

; NAME: MAYO, MICHAEL C.

; REGISTRATION NUMBER: 38,545

; REFERENCE/DOCKET NUMBER: 1462

; TELECOMMUNICATION INFORMATION:

; TELEPHONE: (817) 551-4321

; TELEFAX: (817) 551-4610

; INFORMATION FOR SEQ ID NO: 4:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 29 amino acids

; TYPE: amino acid

; STRANDEDNESS:

; TOPOLOGY: unknown

; MOLECULE TYPE: peptide

; DESCRIPTION: NO

; HYPOTHETICAL: NO

; ANTI-SENSE: NO

US-09-039-168-4

Query Match 93.9%; Score 153; DB 2; Length 29;

Best Local Similarity 96.6%; Pred. No. 1.7e-11;

Matches 28; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKSXTGCSRGMRDCTCTCLLYSNKCRRY 29

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Db 1 CKSXTGCSRGMRDCTCTCLLYSNKCRRY 29

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## RESULT 8

US-09-138-439-4

; Sequence 4, Application US/09138439

; Patent No. 5994305

; GENERAL INFORMATION:

; APPLICANT: JUSTICE, ALAN

; APPLICANT: SINGH, TEJINDER

; APPLICANT: GOHIL, KISHOR C

; APPLICANT: VALENTINO, KAREN L

; APPLICANT: MILJANICH, GEORGE P

; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND

; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA

; NUMBER OF SEQUENCES: 34

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Law Offices of Peter Dehlinger

; STREET: 350 Cambridge Avenue, Suite 300

; CITY: Palo Alto

; STATE: CA

; COUNTRY: USA

; ZIP: 94306

; COMPUTER READABLE FORM:

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; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/138,439
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US/08/049,794
; FILING DATE: 1993-04-15
; APPLICATION NUMBER: US 07/814,759
; FILING DATE: 30-DEC-1991
; ATTORNEY/AGENT INFORMATION:
; NAME: Stratford, Carol A.
; REGISTRATION NUMBER: 34,444
; REFERENCE/DOCKET NUMBER: 5865-0009.30
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (415) 324-0880
; TELEFAX: (415) 324-0960
; INFORMATION FOR SEQ ID NO: 4:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 29 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: GVIIA/SNX-178, FIGURE 1
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 4
; OTHER INFORMATION: /note= "where X is hydroxyproline"
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 7
; OTHER INFORMATION: /note= "where X is hydroxyproline"
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US-09-138-439-4
Query Match 93.9%; Score 153; DB 2; Length 29;
Best Local Similarity 96.6%; Pred. No. 1.7e-11;
Matches 28; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKSXGTGCSRGMRDCTCLSYSNKCRRY 29
Db 1 CKSXGTGCSRGMRDCTCLSYSNKCRRY 29

RESULT 9
US-08-613-400A-4
; Sequence 4, Application US/08613400A
; Patent No. 6054429
; GENERAL INFORMATION:
; APPLICANT: Bowersox, S. Scott
; APPLICANT: Gadbois, Theresa
; APPLICANT: Pettus, Mark, R.
; APPLICANT: Luther, Robert, R.
; TITLE OF INVENTION: IMPROVED EPIDURAL
; TITLE OF INVENTION: METHOD OF PRODUCING ANALGESIA
; NUMBER OF SEQUENCES: 36
; CORRESPONDENCE ADDRESS:
; ADDRESS: Dehlinger & Associates
; STREET: 350 Cambridge Avenue, Suite 250
; CITY: Palo Alto
; STATE: CA
; COUNTRY: US
; ZIP: 94306-1546
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette
; COMPUTER: IBM Compatible
; OPERATING SYSTEM: DOS
; SOFTWARE: FASTSEQ for Windows Version 2.0
; CURRENT APPLICATION DATA:

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; APPLICATION NUMBER: US/08/613,400A
; FILING DATE: 08-MAR-1996
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER:
; FILING DATE:
; ATTORNEY/AGENT INFORMATION:
; NAME: Stratford, Carol A.
; REGISTRATION NUMBER: 34,444
; REFERENCE/DOCKET NUMBER: 5865-0019
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650-324-0880
; TELEFAX: 650-324-0960
; INFORMATION FOR SEQ ID NO: 4:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 29 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: GVIIA/SNX-178, FIGURE 1
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 4
; OTHER INFORMATION: /note= "where X is hydroxyproline"
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 7
; OTHER INFORMATION: /note= "where X is hydroxyproline"
;
US-08-613-400A-4
Query Match 93.9%; Score 153; DB 3; Length 29;
Best Local Similarity 96.6%; Pred. No. 1.7e-11;
Matches 28; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKSXGTGCSRGMRDCTCLSYSNKCRRY 29
Db 1 CKSXGTGCSRGMRDCTCLSYSNKCRRY 29

RESULT 10
US-09-298-017-4
; Sequence 4, Application US/09298017
; Patent No. 6087091
; GENERAL INFORMATION:
; APPLICANT: JUSTICE, ALAN
; APPLICANT: SINGH, TEJINDER
; APPLICANT: GOHIL, KISHOR C
; APPLICANT: VALENTINO, KAREN L
; APPLICANT: MILJANICH, GEORGE P
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA
; NUMBER OF SEQUENCES: 34
; CORRESPONDENCE ADDRESS:
; ADDRESS: Law Offices of Peter Dehlinger
; STREET: 350 Cambridge Avenue, Suite 300
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/298,017
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 08/049,794
; FILING DATE:

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ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 4:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 29 amino acids  
TYPE: amino acid  
MOLECULE TYPE: linear  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: GVIIA/SNX-178, FIGURE 1  
NAME/KEY: Modified-site  
LOCATION: 4  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 7  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-09-298-017-4

Query Match 93.9%; Score 153; DB 3; Length 29;  
Best Local Similarity 96.6%; Pred. No. 1.7e-11;  
Matches 28; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Db 1 CKSXTGCSRGMRDCTCLSYSNKCRRY 29

RESULT 11  
US-09-392-979A-4  
Sequence 4, Application US/09392979A  
Patent No. 6136786  
GENERAL INFORMATION:  
APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/09/392,979A  
FILING DATE:  
CLASSIFICATION:  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 1993-04-15  
APPLICATION NUMBER: US 07/814,759  
FILING DATE: 30-DEC-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30

TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 4:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 29 amino acids  
TYPE: amino acid  
MOLECULE TYPE: linear  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: GVIIA/SNX-178, FIGURE 1  
NAME/KEY: Modified-site  
LOCATION: 4  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 7  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-09-392-979A-4

Query Match 93.9%; Score 153; DB 3; Length 29;  
Best Local Similarity 96.6%; Pred. No. 1.7e-11;  
Matches 28; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Db 1 CKSXTGCSRGMRDCTCLSYSNKCRRY 29

RESULT 12  
5189020-4  
Patent No. 5189020  
APPLICANT: Miljanich, George P.; Bitner, Robert S.; Bowersox,  
Stephen S.; Fox, James A.; Valentino, Karen L.; Yamashiro, Donald  
H.; Tsubokawa, Makoto  
TITLE OF INVENTION: METHOD OF REDUCING NEURONAL DAMAGE USING  
OMEGA CONOTOXIN PEPTIDES  
NUMBER OF SEQUENCES: 29  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/561,766  
FILING DATE: 02-AUG-1990  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 440,094  
FILING DATE: 22-NOV-1989  
SEQ ID NO: 4:  
LENGTH: 29  
5189020-4

Query Match 93.9%; Score 153; DB 6; Length 29;  
Best Local Similarity 96.6%; Pred. No. 1.7e-11;  
Matches 28; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKSXTGCSRGMRDCTCLSYSNKCRRY 29  
Db 1 CKSXTGCSRGMRDCTCLSYSNKCRRY 29

RESULT 13  
5424218-4  
Patent No. 5424218  
APPLICANT: MILJANICH, GEORGE P.; BITNER, ROBERT S.; BOWERSOX,  
STEPHEN S.; FOX, JAMES A.; VALENTINO, KAREN L.; YAMASHIRO, DONALD H.  
TITLE OF INVENTION: SCREENING METHOD FOR NEUROPROTECTIVE COMPOUNDS  
NUMBER OF SEQUENCES: 21  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/147,714  
FILING DATE: 04-NOV-1993  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 855,269  
FILING DATE: 23-MAR-1992  
APPLICATION NUMBER: 561,766

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/ APPLICATION NUMBER: 440,094  
/ FILING DATE: 22-NOV-1989  
/ SEQ ID NO:4:  
/ LENGTH: 29  
5424218-4

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Matches 28; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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DB 1 CKSXGTGCSRGMRDCTCLSYSNKCRRY 29

RESULT 14  
5189020-4  
/ Patent No. 5189020  
/ APPLICANT: Miljanich, George P.; Bitner, Robert S.; Bowersox,  
/ Stephen S.; Fox, James A.; Valentino, Karen L.; Yamashiro, Donald  
/ H.; Taubokawa, Makoto  
/ TITLE OF INVENTION: METHOD OF REDUCING NEURONAL DAMAGE USING  
/ OMEGA CONOTOXIN PEPTIDES  
/ NUMBER OF SEQUENCES: 29  
/ CURRENT APPLICATION DATA:  
/ APPLICATION NUMBER: US/07/561,766  
/ FILING DATE: 02-AUG-1990  
/ PRIOR APPLICATION DATA:  
/ APPLICATION NUMBER: 440,094  
/ FILING DATE: 22-NOV-1989  
/ SEQ ID NO:4:  
/ LENGTH: 29  
5189020-4

Query Match  
Best Local Similarity 93.9%; Score 153; DB 6; Length 29;  
Matches 28; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKSXGTGCSRGMRDCTCLSYSNKCRRY 29  
DB 1 CKSXGTGCSRGMRDCTCLSYSNKCRRY 29

RESULT 15  
5424218-4  
/ Patent No. 5424218  
/ APPLICANT: MILJANICH, GEORGE P.; BITNER, ROBERT S.; BOWERSOX,  
/ STEPHEN S.; FOX, JAMES A.; VALENTINO, KAREN L.; YAMASHIRO, DONALD H.  
/ TITLE OF INVENTION: SCREENING METHOD FOR NEUROPROTECTIVE COMPOUNDS  
/ NUMBER OF SEQUENCES: 21  
/ CURRENT APPLICATION DATA:  
/ APPLICATION NUMBER: US/08/147,714  
/ FILING DATE: 04-NOV-1993  
/ PRIOR APPLICATION DATA:  
/ APPLICATION NUMBER: 855,269  
/ FILING DATE: 23-MAR-1992  
/ APPLICATION NUMBER: 561,766  
/ FILING DATE: 02-AUG-1990  
/ APPLICATION NUMBER: 440,094  
/ FILING DATE: 22-NOV-1989  
/ SEQ ID NO:4:  
/ LENGTH: 29  
5424218-4

Query Match  
Best Local Similarity 93.9%; Score 153; DB 6; Length 29;  
Matches 28; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKSXGTGCSRGMRDCTCLSYSNKCRRY 29  
DB 1 CKSXGTGCSRGMRDCTCLSYSNKCRRY 29

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OM protein - protein search, using sw model

Run on: March 22, 2005, 23:46:47 ; Search time 66.1353 Seconds  
(without alignments)  
144.941 Million cell updates/sec

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Perfect score: 163  
Sequence: 1 CKSXTGXCGRMRDCCSLSYSNKCRRY 29

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Listing first 45 summaries

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- 11: /cgm2\_6/ptodata/2/pubpaa/US09C\_PUBCOMB.pep.\*
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- 13: /cgm2\_6/ptodata/2/pubpaa/US10A\_PUBCOMB.pep.\*
- 14: /cgm2\_6/ptodata/2/pubpaa/US10B\_PUBCOMB.pep.\*
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- 19: /cgm2\_6/ptodata/2/pubpaa/US60\_NEW\_PUB.pep.\*
- 20: /cgm2\_6/ptodata/2/pubpaa/US60\_PUBCOMB.pep.\*

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SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	151	92.6	55	10	US-09-910-082A-147
2	151	92.6	55	16	US-10-765-926-147
3	146	89.6	29	10	US-09-910-082A-357
4	146	89.6	29	16	US-10-765-926-357
5	146	89.6	74	10	US-09-910-082A-139
6	146	89.6	74	16	US-10-765-926-139
7	144	88.3	29	10	US-09-910-082A-149
8	144	88.3	29	16	US-10-765-926-149
9	138	84.7	29	10	US-09-910-082A-148
10	138	84.7	29	16	US-10-765-926-148
11	134	82.2	29	10	US-09-910-082A-140
12	134	82.2	29	16	US-10-765-926-140
13	99	60.7	29	10	US-09-910-082A-158

14	99	60.7	29	16	US-10-765-926-158	Sequence 158, App
15	98	60.1	29	10	US-09-910-082A-368	Sequence 368, App
16	98	60.1	29	16	US-10-765-926-368	Sequence 368, App
17	98	60.1	30	10	US-09-910-082A-358	Sequence 358, App
18	98	60.1	30	16	US-10-765-926-358	Sequence 358, App
19	98	60.1	75	10	US-09-910-082A-157	Sequence 157, App
20	98	60.1	75	16	US-10-765-926-157	Sequence 157, App
21	98	60.1	76	10	US-09-910-082A-2	Sequence 2, Appli
22	98	60.1	76	16	US-10-765-926-2	Sequence 2, Appli
23	91	55.8	30	10	US-09-910-082A-3	Sequence 3, Appli
24	91	55.8	30	16	US-10-765-926-3	Sequence 3, Appli
25	86	52.8	30	10	US-09-910-082A-364	Sequence 364, App
26	86	52.8	30	16	US-10-765-926-364	Sequence 364, App
27	86	52.8	75	10	US-09-910-082A-178	Sequence 178, App
28	86	52.8	75	16	US-10-765-926-178	Sequence 178, App
29	85.5	52.5	27	10	US-09-910-082A-350	Sequence 350, App
30	85.5	52.5	27	16	US-10-765-926-350	Sequence 350, App
31	85.5	52.5	73	10	US-09-910-082A-94	Sequence 94, Appl
32	85.5	52.5	73	16	US-10-765-926-94	Sequence 94, Appl
33	83.5	51.2	27	10	US-09-910-082A-398	Sequence 398, App
34	83.5	51.2	27	16	US-10-765-926-398	Sequence 398, App
35	83.5	51.2	73	10	US-09-910-082A-244	Sequence 244, App
36	83.5	51.2	73	16	US-10-765-926-244	Sequence 244, App
37	81	49.7	30	10	US-09-910-082A-179	Sequence 179, App
38	81	49.7	30	16	US-10-765-926-179	Sequence 179, App
39	79	48.5	73	10	US-09-910-082A-283	Sequence 283, App
40	79	48.5	73	16	US-10-765-926-283	Sequence 283, App
41	79	48.5	73	16	US-10-765-926-283	Sequence 283, App
42	79	48.5	73	16	US-10-765-926-286	Sequence 286, App
43	78.5	48.2	27	10	US-09-910-082A-95	Sequence 95, Appl
44	78.5	48.2	27	16	US-10-765-926-95	Sequence 95, Appl
45	78	47.9	27	10	US-09-910-082A-284	Sequence 284, App

ALIGNMENTS

RESULT 1

US-09-910-082A-147  
; Sequence 147, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 147  
; LENGTH: 55  
; TYPE: PRT  
; ORGANISM: Conus geographus  
US-09-910-082A-147

Query Match 92.6%; Score 151; DB 10; Length 55;  
Best Local Similarity 89.7%; Pred. No. 1e-10;  
Matches 26; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CKSXTGXCGRMRDCCSLSYSNKCRRY 29

```
Db      27  CKSPGTCRGRDCTCTCLLYSNKCRY 55
|||||
TYPE: PRT
ORGANISM: Conus geographus
US-09-910-082A-357

Query Match      89.6%; Score 146; DB 10; Length 29;
Best Local Similarity 86.2%; Pred. No. 2.3e-10;
Matches 25; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

Qy      1  CKSXGTXCSRGMRDCTCTCLLYSNKCRY 29
|||||
Db      1  CKSPGTCRGRDCTCTCLLYSNKCRY 29

RESULT 4
US-10-765-926-357
; Sequence 357, Application US/10765926
; Publication No. US20040132663A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/10/765,926
; CURRENT FILING DATE: 2004-01-29
; PRIOR APPLICATION NUMBER: US 09/910,082
; PRIOR FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 147
; LENGTH: 55
; TYPE: PRT
; ORGANISM: Conus geographus
US-10-765-926-147

Query Match      92.6%; Score 151; DB 16; Length 55;
Best Local Similarity 89.7%; Pred. No. 1e-10;
Matches 26; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

Qy      1  CKSXGTXCSRGMRDCTCTCLLYSNKCRY 29
|||||
Db      27  CKSPGTCRGRDCTCTCLLYSNKCRY 55

RESULT 3
US-09-910-082A-357
; Sequence 357, Application US/09910082A
; Publication No. US20030119731A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/09/910,082A
; CURRENT FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 357
; LENGTH: 29
; TYPE: PRT
; ORGANISM: Conus geographus
US-10-765-926-147

Query Match      89.6%; Score 146; DB 16; Length 29;
Best Local Similarity 86.2%; Pred. No. 2.3e-10;
Matches 25; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

Qy      1  CKSXGTXCSRGMRDCTCTCLLYSNKCRY 29
|||||
Db      1  CKSPGTCRGRDCTCTCLLYSNKCRY 29

RESULT 5
US-09-910-082A-139
; Sequence 139, Application US/09910082A
; Publication No. US20030119731A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/09/910,082A
```



; OTHER INFORMATION: di-iodo-Tyr, O-sulpho-Tyr or O-phospho-Tyr  
US-10-765-926-149

Query Match 88.3%; Score 144; DB 16; Length 29;  
Best Local Similarity 96.4%; Pred. No. 4e-10;  
Matches 27; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKSXGTXCSRGWRDCTCTSLYSNKCRR 28  
|||||  
DB 1 CKSXGTXCSRGWRDCTCTSLYSNKCRR 28  
|||||

## RESULT 9

US-09-910-082A-148  
; Sequence 148, Application US/09910082A  
; Publication No. US20030119731A1

; GENERAL INFORMATION:

; APPLICANT: University of Utah Research Foundation

; APPLICANT: Cognetix, Inc.

; APPLICANT: Olivera, Baldomero M.

; APPLICANT: McIntosh, J. Michael

; APPLICANT: Watkins, Maren

; APPLICANT: Garrett, James E.

; APPLICANT: Shon, Ki-Joon

; APPLICANT: Jacobsen, Richard

; APPLICANT: Jones, Robert M.

; APPLICANT: Cartier, G. Edward

; TITLE OF INVENTION: Omega-Conopeptides

; FILE REFERENCE: 2314-241

; CURRENT APPLICATION NUMBER: US/09/910,082A

; CURRENT FILING DATE: 2001-07-23

; PRIOR APPLICATION NUMBER: US 60/219,616

; PRIOR FILING DATE: 2000-07-21

; PRIOR APPLICATION NUMBER: US 60/265,888

; PRIOR FILING DATE: 2001-02-05

; NUMBER OF SEQ ID NOS: 413

; SOFTWARE: PatentIn version 3.0

; SEQ ID NO 148

; LENGTH: 29

; TYPE: PRT

; ORGANISM: Conus geographus

; FEATURE:

; NAME/KEY: PEPTIDE

; LOCATION: (1)..(29)

; OTHER INFORMATION: Xaa at residue 4 and 7 is Pro or Hyp; Xaa at residue 22 and 29 is

; OTHER INFORMATION: Tyr, 125I-Tyr, mono-iodo-Tyr, di-iodo-Tyr, O-sulpho-Tyr or O-pho

; OTHER INFORMATION: spho-Tyr

US-09-910-082A-148

Query Match 84.7%; Score 138; DB 10; Length 29;  
Best Local Similarity 92.9%; Pred. No. 2e-09;  
Matches 26; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CKSXGTXCSRGWRDCTCTSLYSNKCRR 28  
|||||  
DB 1 CKSXGTXCSRGWRDCTCTSLYSNKCRR 28  
|||||

## RESULT 10

US-10-765-926-148

; Sequence 148, Application US/10765926

; Publication No. US20040132663A1

; GENERAL INFORMATION:

; APPLICANT: University of Utah Research Foundation

; APPLICANT: Cognetix, Inc.

; APPLICANT: Olivera, Baldomero M.

; APPLICANT: McIntosh, J. Michael

; APPLICANT: Watkins, Maren

; APPLICANT: Garrett, James E.

; APPLICANT: Shon, Ki-Joon

; APPLICANT: Jacobsen, Richard

; APPLICANT: Jones, Robert M.

; APPLICANT: Cartier, G. Edward

; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241

; CURRENT APPLICATION NUMBER: US/10/765,926

; CURRENT FILING DATE: 2004-01-29

; PRIOR APPLICATION NUMBER: US 09/910,082

; PRIOR FILING DATE: 2001-07-23

; PRIOR APPLICATION NUMBER: US 60/219,616

; PRIOR FILING DATE: 2000-07-21

; PRIOR APPLICATION NUMBER: US 60/265,888

; PRIOR FILING DATE: 2001-02-05

; NUMBER OF SEQ ID NOS: 413

; SOFTWARE: PatentIn version 3.0

; SEQ ID NO 148

; LENGTH: 29

; TYPE: PRT

; ORGANISM: Conus geographus

; FEATURE:

; NAME/KEY: PEPTIDE

; LOCATION: (1)..(29)

; OTHER INFORMATION: Xaa at residue 4 and 7 is Pro or Hyp; Xaa at

; OTHER INFORMATION: residue 22 and 29 is Tyr, 125I-Tyr, mono-iodo-Tyr,

; OTHER INFORMATION: di-iodo-Tyr, O-sulpho-Tyr or O-phospho-Tyr

US-10-765-926-148

Query Match 84.7%; Score 138; DB 16; Length 29;  
Best Local Similarity 92.9%; Pred. No. 2e-09;  
Matches 26; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CKSXGTXCSRGWRDCTCTSLYSNKCRR 28  
|||||  
DB 1 CKSXGTXCSRGWRDCTCTSLYSNKCRR 28  
|||||

## RESULT 11

US-09-910-082A-140

; Sequence 140, Application US/09910082A

; Publication No. US20030119731A1

; GENERAL INFORMATION:

; APPLICANT: University of Utah Research Foundation

; APPLICANT: Cognetix, Inc.

; APPLICANT: Olivera, Baldomero M.

; APPLICANT: McIntosh, J. Michael

; APPLICANT: Watkins, Maren

; APPLICANT: Garrett, James E.

; APPLICANT: Shon, Ki-Joon

; APPLICANT: Jacobsen, Richard

; APPLICANT: Jones, Robert M.

; APPLICANT: Cartier, G. Edward

; TITLE OF INVENTION: Omega-Conopeptides

; FILE REFERENCE: 2314-241

; CURRENT APPLICATION NUMBER: US/09/910,082A

; CURRENT FILING DATE: 2001-07-23

; PRIOR APPLICATION NUMBER: US 60/219,616

; PRIOR FILING DATE: 2000-07-21

; PRIOR APPLICATION NUMBER: US 60/265,888

; PRIOR FILING DATE: 2001-02-05

; NUMBER OF SEQ ID NOS: 413

; SOFTWARE: PatentIn version 3.0

; SEQ ID NO 140

; LENGTH: 29

; TYPE: PRT

; ORGANISM: Conus geographus

; FEATURE:

; NAME/KEY: PEPTIDE

; LOCATION: (1)..(29)

; OTHER INFORMATION: Xaa at residue 4, 7 and 18 is Pro or Hyp; Xaa at residue 22 and 2

; OTHER INFORMATION: 9 is Tyr, 125I-Tyr, mono-iodo-Tyr, di-iodo-Tyr, O-sulpho-Tyr or O

; OTHER INFORMATION: -phospho-Tyr

US-09-910-082A-140

Query Match 82.2%; Score 134; DB 10; Length 29;  
Best Local Similarity 89.3%; Pred. No. 5.9e-09;  
Matches 25; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CKSXGTGTCRGRMDCCTCLSYSNKRR 28  
| | | | | | | | | | | | | | | | | | | | | |  
Db 1 CKSXGTGTCRGRMDCCTCLLXSNKRR 28  
| | | | | | | | | | | | | | | | | | | | | |

## RESULT 12

US-10-765-926-140

; Sequence 140, Application US/10765926  
; Publication No. US20040132663A1  
; GENERAL INFORMATION:

; APPLICANT: University of Utah Research Foundation

; APPLICANT: Cognetix, Inc.

; APPLICANT: Olivera, Baldomero M.

; APPLICANT: McIntosh, J. Michael

; APPLICANT: Watkins, Maren

; APPLICANT: Garrett, James E.

; APPLICANT: Shon, Ki-Joon

; APPLICANT: Jacobsen, Richard

; APPLICANT: Jones, Robert M.

; APPLICANT: Cartier, G. Edward

; TITLE OF INVENTION: Omega-Conopeptides

; FILE REFERENCE: 2314-241

; CURRENT APPLICATION NUMBER: US/10/765,926

; CURRENT FILING DATE: 2004-01-29

; PRIOR APPLICATION NUMBER: US 09/910,082

; PRIOR FILING DATE: 2001-07-23

; PRIOR APPLICATION NUMBER: US 60/219,616

; PRIOR FILING DATE: 2000-07-21

; PRIOR APPLICATION NUMBER: US 60/265,888

; PRIOR FILING DATE: 2001-02-05

; NUMBER OF SEQ ID NOS: 413

; SOFTWARE: PatentIn version 3.0

; SEQ ID NO 140

; LENGTH: 29

; TYPE: PRT

; ORGANISM: Conus geographus

; FEATURE:

; NAME/KEY: PEPTIDE

; LOCATION: (1)..(29)

; OTHER INFORMATION: Xaa at residue 4, 7 and 18 is pro or Hyp; Xaa at  
; residue 22 and 29 is Tyr, 125I-Tyr, mono-iodo-Tyr,  
; OTHER INFORMATION: di-iodo-Tyr, O-sulpho-Tyr or O-phospho-Tyr

US-10-765-926-140

Query Match 82.2%; Score 134; DB 16; Length 29;  
Best Local Similarity 89.3%; Pred. No. 5.9e-09;  
Matches 25; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CKSXGTGTCRGRMDCCTCLSYSNKRR 28  
| | | | | | | | | | | | | | | | | | | | | |  
Db 1 CKSXGTGTCRGRMDCCTCLLXSNKRR 28  
| | | | | | | | | | | | | | | | | | | | | |

## RESULT 13

US-09-910-082A-158

; Sequence 158, Application US/09910082A

; Publication No. US20030119731A1

; GENERAL INFORMATION:

; APPLICANT: University of Utah Research Foundation

; APPLICANT: Cognetix, Inc.

; APPLICANT: Olivera, Baldomero M.

; APPLICANT: McIntosh, J. Michael

; APPLICANT: Watkins, Maren

; APPLICANT: Garrett, James E.

; APPLICANT: Shon, Ki-Joon

; APPLICANT: Jacobsen, Richard

; APPLICANT: Jones, Robert M.

; APPLICANT: Cartier, G. Edward

; TITLE OF INVENTION: Omega-Conopeptides

; FILE REFERENCE: 2314-241

; CURRENT APPLICATION NUMBER: US/09/910,082A

; CURRENT FILING DATE: 2001-07-23

; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 158  
; LENGTH: 29  
; TYPE: PRT  
; ORGANISM: Conus laterculatus  
; FEATURE:  
; NAME/KEY: PEPTIDE  
; LOCATION: (1)..(29)  
; OTHER INFORMATION: Xaa at residue 3 is Pro or Hyp  
US-09-910-082A-158

Query Match 60.7%; Score 99; DB 10; Length 29;  
Best Local Similarity 64.3%; Pred. No. 7.5e-05;  
Matches 18; Conservative 3; Mismatches 7; Indels 0; Gaps 0;

QY 1 CKSXGTGTCRGRMDCCTCLSYSNKRR 28  
| | | | | | | | | | | | | | | | | | | | | |  
Db 1 CKSXGSCSVSMRNCCTCSNRKCTR 28  
| | | | | | | | | | | | | | | | | | | | | |

## RESULT 14

US-10-765-926-158

; Sequence 158, Application US/10765926

; Publication No. US20040132663A1

; GENERAL INFORMATION:

; APPLICANT: University of Utah Research Foundation

; APPLICANT: Cognetix, Inc.

; APPLICANT: Olivera, Baldomero M.

; APPLICANT: McIntosh, J. Michael

; APPLICANT: Watkins, Maren

; APPLICANT: Garrett, James E.

; APPLICANT: Shon, Ki-Joon

; APPLICANT: Jacobsen, Richard

; APPLICANT: Jones, Robert M.

; APPLICANT: Cartier, G. Edward

; TITLE OF INVENTION: Omega-Conopeptides

; FILE REFERENCE: 2314-241

; CURRENT APPLICATION NUMBER: US/10/765,926

; CURRENT FILING DATE: 2004-01-29

; PRIOR APPLICATION NUMBER: US 09/910,082

; PRIOR FILING DATE: 2001-07-23

; PRIOR APPLICATION NUMBER: US 60/219,616

; PRIOR FILING DATE: 2000-07-21

; PRIOR APPLICATION NUMBER: US 60/265,888

; PRIOR FILING DATE: 2001-02-05

; NUMBER OF SEQ ID NOS: 413

; SOFTWARE: PatentIn version 3.0

; SEQ ID NO 158

; LENGTH: 29

; TYPE: PRT

; ORGANISM: Conus laterculatus

; FEATURE:

; NAME/KEY: PEPTIDE

; LOCATION: (1)..(29)

; OTHER INFORMATION: Xaa at residue 3 is Pro or Hyp  
US-10-765-926-158

Query Match 60.7%; Score 99; DB 16; Length 29;  
Best Local Similarity 64.3%; Pred. No. 7.5e-05;  
Matches 18; Conservative 3; Mismatches 7; Indels 0; Gaps 0;

QY 1 CKSXGTGTCRGRMDCCTCLSYSNKRR 28  
| | | | | | | | | | | | | | | | | | | | | |  
Db 1 CKSXGSCSVSMRNCCTCSNRKCTR 28  
| | | | | | | | | | | | | | | | | | | | | |

## RESULT 15

US-09-910-082A-368

```

; Sequence 368, Application US/09910082A
; Publication No. US20030119731A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/09/910,082A
; CURRENT FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 368
; LENGTH: 29
; TYPE: PRT
; ORGANISM: Conus laterculatus
; US-09-910-082A-368

Query Match          60.1%; Score 98; DB 10; Length 29;
Best Local Similarity 60.7%; Pred. No. 9,8e-05;
Matches 17; Conservative 3; Mismatches 8; Indels

QY      1 CKSXGTXCSGRMDCCTCSLSYNNKRR 28
      |||: |||: |||: |||: |||: |||:
Db      1 CKSPGSCSVSMRNCCTCSNRTKCTR 28

Search completed: March 23, 2005, 00:35:04
Job time : 67.2067 secs

```







C:Accession: JH0699; PC2380  
R:Hillary, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadaesi, L.; Ramachandran, J.; M  
Neuron 9, 69-77, 1992  
A:Title: A new conus peptide ligand for mammalian presynaptic Ca2+ channels.  
A:Reference number: JH0699; MUID:92337922; PMID:1352986  
A:Accession: JH0699  
A:Molecule type: mRNA  
A:Residues: 1-29 <HIL>  
A:CROSS-references: UNIPROT:P37300; GB:S40826; NID:9252126; PIDN:AAB22674.1; PID:9252127  
R:Nemoto, N.; Kubo, S.; Yoshida, T.; Chino, N.; Kimura, T.; Sakakibara, S.; Kyogoku, Y.  
Biochem. Biophys. Res. Commun. 207, 695-700, 1995  
A:Title: Solution structure of omega-conotoxin MVIC determined by NMR.  
A:Reference number: PC2380; MUID:95169113; PMID:7864862  
A:Accession: PC2380  
A:Molecule type: protein  
A:Residues: 3-28 <NEM>  
R:Farr-Jones, S.; Basus, V.J.  
submitted to the Brookhaven Protein Data Bank, December 1994  
A:Reference number: A6297; PDB:1OMN  
A:Contents: annotation; conformation by (1)H-NMR, residues 3-28  
R:Farr-Jones, S.; Miljanich, G.P.; Nadaesi, L.; Ramachandran, J.; Basus, V.J.  
J. Mol. Biol. 248, 106-124, 1995  
A:Title: Solution structure of omega-conotoxin MVIC, a high affinity of P-type calcium  
A:Reference number: A58582; MUID:95248539; PMID:7731037  
A:Contents: annotation; conformation by (1)H-NMR  
C:Superfamily: omega-conotoxin  
A:Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh  
F:3-28/Product: omega-conotoxin MVIC #status experimental <MAT>  
F:3-18,10-22,17-28/Diulfide bonds: #status experimental  
F:28/Modified site: amidated carboxyl end (Cys) (amide in mature form from following gly

Query Match 38.0%; Score 62; DB 2; Length 29;  
Best Local Similarity 38.5%; Pred. No. 0.48;  
Matches 10; Conservative 2; Mismatches 14; Indels 0; Gaps 0;

QY 1 CKSXGTXCSRGMRDCTCCLSYSNKC 26  
DB 3 CKRGAPCRKTYDCCSGCGRRGKC 28

RESULT 6  
S44391  
Metallothionein 3 - bovine  
N:Alternate names: neuronal growth inhibitory factor  
C:Species: Bos primigenius taurus (cattle)  
C:Date: 19-Mar-1997 #sequence\_revision 19-Mar-1997 #text\_change 09-Jul-2004  
A:Accession: S44391  
R:Pountney, D.L.; Fundel, S.M.; Faller, P.; Birchler, N.E.; Hunziker, P.; Vasak, M.  
FEBS Lett. 345, 193-197, 1994  
A:Title: Isolation, primary structures and metal binding properties of neuronal growth  
A:Reference number: S44391; MUID:94259179; PMID:8200454  
A:Accession: S44391  
A:Status: preliminary  
A:Molecule type: protein  
A:Residues: 1-68 <POU>  
A:CROSS-references: UNIPROT:P37359  
C:Superfamily: metallothionein

Query Match 37.4%; Score 61; DB 2; Length 68;  
Best Local Similarity 32.1%; Pred. No. 1.1;  
Matches 9; Conservative 5; Mismatches 14; Indels 0; Gaps 0;

QY 1 CKSXGTXCSRGMRDCTCCLSYSNKCRR 28  
DB 20 CKEGCTASCCKSCSCCPACERCAK 47

RESULT 7  
C44379  
omega-conotoxin SVIB [validated] - cone shell (Conus striatus)  
N:Alternate names: SNX-183  
C:Species: Conus striatus (striated cone)  
C:Date: 31-Dec-1993 #sequence\_revision 31-Dec-1993 #text\_change 15-Sep-2000

C:Accession: C44379  
R:Ramilo, C.A.; Zafaralla, G.C.; Nadaesi, L.; Hammerland, L.G.; Yoshikami, D.; Gray, W.R.  
Biochemistry 31, 9919-9926, 1992  
A:Title: Novel alpha- and omega-conotoxins from Conus striatus venom.  
A:Reference number: A44379; MUID:93003172; PMID:1390774  
A:Accession: C44379  
A:Molecule type: protein  
A:Residues: 1-26 <RAM>  
A:CROSS-references: CAS:143306-19-8  
A:Experimental source: venom  
A:Notes: sequence extracted from NCBI backbone (NCBI:116002); structure confirmed by chen  
R:Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.  
submitted to the Brookhaven Protein Data Bank, August 1996  
A:Reference number: A67649; PDB:1MVU  
A:Contents: annotation; conformation by (1)H-NMR, residues 1-26  
R:Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.  
J. Mol. Biol. 263, 297-310, 1996  
A:Title: A consensus structure for omega-conotoxins with different selectivities for volt  
A:Reference number: A58619; MUID:97070382; PMID:8913308  
A:Contents: annotation; conformation by (1)H-NMR  
C:Comment: This omega-conotoxin blocks presynaptic calcium channels.  
C:Superfamily: omega-conotoxin  
A:Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh  
F:1-16,8-20,15-26/Diulfide bonds: #status predicted  
F:26/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 36.8%; Score 60; DB 2; Length 26;  
Best Local Similarity 38.5%; Pred. No. 0.76;  
Matches 10; Conservative 2; Mismatches 14; Indels 0; Gaps 0;

QY 1 CKSXGTXCSRGMRDCTCCLSYSNKC 26  
DB 1 CKLKGQSCRKTSYDCCSGCGRRGKC 26

RESULT 8  
S58086  
Metallothionein 3 - rat  
N:Alternate names: neurotrophic growth inhibitory factor  
C:Species: Rattus norvegicus (Norway rat)  
C:Date: 13-Jan-1996 #sequence\_revision 19-Apr-1996 #text\_change 09-Jul-2004  
A:Accession: S58086; I52636  
R:Amoureux, M.C.; Kethaus, E.; Wurch, T.; Colpaert, P.C.; Pauwels, P.J.  
submitted to the EMBL Data Library, July 1995  
A:Reference number: S58084  
A:Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-66 <AMO>  
A:CROSS-references: UNIPROT:P37361; EMBL:X89603; NID:9908880; PIDN:CAA61762.1; PID:990888  
R:Kobayashi, H.; Uchida, Y.; Ihara, Y.; Nakajima, K.; Kohsaka, S.; Miyatake, T.; Tsuji, S.  
Brain Res. Mol. Brain Res. 19, 188-194, 1993  
A:Title: Molecular cloning of rat growth inhibitory factor cDNA and the expression in the  
A:Reference number: I52636; MUID:94018480; PMID:8412560  
A:Accession: I52636  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-66 <KOB>  
A:CROSS-references: GB:S65838; NID:9425381; PIDN:AAB28366.1; PID:9425382  
C:Superfamily: metallothionein  
A:Keywords: acetylated amino end; chelation; metal binding; metal-thiolate cluster  
F:1/Modified site: acetylated amino end (Met) #status predicted  
F:6,8,14,16,20,22,25,27,30/Binding site: transition metal ions (Cys) #status predicted  
F:34,35,37,38,42,45,51,62,64,65/Binding site: transition metal ions (Cys) #status pre

Query Match 36.8%; Score 60; DB 2; Length 66;  
Best Local Similarity 32.1%; Pred. No. 1.4;  
Matches 9; Conservative 5; Mismatches 14; Indels 0; Gaps 0;

QY 1 CKSXGTXCSRGMRDCTCCLSYSNKCRR 28  
DB 20 CKRGCKCTNCKKSCSCCPACERCAK 47

RESULT 9  
 I67866  
 growth inhibitory factor - mouse  
 C:Species: Mus sp. (mouse)  
 C>Date: 29-May-1998 #sequence\_revision 29-May-1998 #text\_change 20-Aug-1999  
 C:Accession: I67866  
 R:Naruse, S.; Igarashi, S.; Furuya, T.; Kobayashi, H.; Miyatake, T.; Tsuji, S.  
 Gene 144, 283-287, 1994  
 A>Title: Structures of the human and mouse growth inhibitory factor-encoding genes.  
 A:Reference number: I53803; MUID:94314230; PMID:8039715  
 A:Accession: I67866  
 A>Status: preliminary; translated from GB/EMBL/DBJ  
 A:Molecule type: DNA  
 A:Residues: 1-68 <RES>  
 A:CROSS-references: GB:S72046; NID:G565191; PIDN:AA31397.1; PID:G565192  
 C:Genetics: GIF  
 A:Gene: GIF  
 A:Introns: 11/1, 33/1  
 C:Superfamily: metallothionein  
 Query Match 36.8%; Score 60; DB 2; Length 68;  
 Best Local Similarity 32.1%; Pred. No. 1.4;  
 Matches 9; Conservative 5; Mismatches 14; Indels 0; Gaps 0;  
 QY 1 CKSXGTGCSRGMRDCTCLSYSNKRR 28  
 DB 20 CKKGCKTCKKSCCCPACCEKCAK 47  
 RESULT 10  
 B46034  
 metallothionein 3, brain-specific - human  
 N:Alternate names: growth inhibitory factor; metallothionein MT-III  
 C:Species: Homo sapiens (man)  
 C>Date: 21-Sep-1993 #sequence\_revision 18-Nov-1994 #text\_change 09-Jul-2004  
 C:Accession: B46034; S28393; JH0463; S58084; I53803  
 R:Palmiter, R.D.; Findley, S.D.; Whitmore, T.E.; Durnam, D.M.  
 Proc. Natl. Acad. Sci. U.S.A. 89, 6333-6337, 1992  
 A>Title: MT-III, a brain-specific member of the metallothionein gene family.  
 A:Reference number: A46034; MUID:92335292; PMID:1631128  
 A:Accession: B46034  
 A:Molecule type: DNA  
 A:Residues: 1-68 <PAL>  
 A:CROSS-references: UNIPROT:P25713; GB:M93311; NID:G187546; PIDN:AAA36214.1; PID:G187547  
 A>Note: sequence extracted from NCBI backbone (NCBIN:108717, NCBIN:111117, NCBI:P:108718)  
 R:Tsuji, S.; Kobayashi, H.; Uchida, Y.; Ihara, Y.; Miyatake, T.  
 EMBO J. 11, 4843-4850, 1992  
 A>Title: Molecular cloning of human growth inhibitory factor cDNA and its down-regulation  
 A:Reference number: S28393; MUID:93099858; PMID:1464312  
 A:Accession: S28393  
 A:Molecule type: mRNA  
 A:Residues: 1-68 <TSU>  
 A:CROSS-references: EMBL:D13365  
 R:Uchida, Y.; Takio, K.; Titani, K.; Ihara, Y.; Tomonaga, M.  
 Neuron 7, 337-347, 1991  
 A>Title: The growth inhibitory factor that is deficient in the Alzheimer's disease brain  
 A:Reference number: JH0463; MUID:91337462; PMID:1873033  
 A:Accession: JH0463  
 A:Molecule type: protein  
 A:Residues: 1-68 <UCH>  
 A>Note: the amino end was shown to be blocked  
 R:Amouroux, M.C.; Rethnaus, E.; Wurch, T.; Colpaert, P.C.; Pauwels, P.J.  
 submitted to the EMBL Data Library, July 1995  
 A:Reference number: S58084  
 A:Accession: S58084  
 A>Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-68 <AMO>  
 A:CROSS-references: EMBL:X89604; NID:G914850; PIDN:CAA61763.1; PID:G914851  
 R:Naruse, S.; Igarashi, S.; Furuya, T.; Kobayashi, H.; Miyatake, T.; Tsuji, S.  
 Gene 144, 283-287, 1994  
 A>Title: Structures of the human and mouse growth inhibitory factor-encoding genes.

A:Reference number: I53803; MUID:94314230; PMID:8039715  
 A:Accession: I53803  
 A>Status: preliminary; translated from GB/EMBL/DBJ  
 A:Molecule type: DNA  
 A:Residues: 1-68 <RES>  
 A:CROSS-references: GB:S72043; NID:G565189; PIDN:AA31396.1; PID:G565190  
 C:Genetics: GIF  
 A:Gene: GIF  
 A:Introns: 11/1, 33/1  
 C:Superfamily: metallothionein  
 C:Keywords: Alzheimer's disease; blocked amino end; brain  
 Query Match 36.8%; Score 60; DB 2; Length 68;  
 Best Local Similarity 32.1%; Pred. No. 1.4;  
 Matches 9; Conservative 5; Mismatches 14; Indels 0; Gaps 0;  
 QY 1 CKSXGTGCSRGMRDCTCLSYSNKRR 28  
 DB 20 CKKGCKTCKKSCCCPACCEKCAK 47  
 RESULT 11  
 S44392  
 metallothionein 3 - horse  
 N:Alternate names: neuronal growth inhibitory factor  
 C:Species: Equus caballus (domestic horse)  
 C>Date: 19-Mar-1997 #sequence\_revision 19-Mar-1997 #text\_change 09-Jul-2004  
 C:Accession: S44392  
 R:Pountney, D.L.; Fundel, S.M.; Faller, P.; Birchler, N.E.; Hunziker, P.; Vasak, M.  
 FEBS Lett. 345, 193-197, 1994  
 A>Title: Isolation, primary structures and metal binding properties of neuronal growth in  
 A:Reference number: S44391; MUID:94259179; PMID:8200454  
 A:Accession: S44392  
 A>Status: preliminary  
 A:Molecule type: protein  
 A:Residues: 1-68 <POU>  
 A:CROSS-references: UNIPROT:P37360  
 C:Superfamily: metallothionein  
 Query Match 36.8%; Score 60; DB 2; Length 68;  
 Best Local Similarity 32.1%; Pred. No. 1.4;  
 Matches 9; Conservative 5; Mismatches 14; Indels 0; Gaps 0;  
 QY 1 CKSXGTGCSRGMRDCTCLSYSNKRR 28  
 DB 20 CKKGCKTCKKSCCCPACCEKCAK 47

RESULT 12  
 JC6521  
 metallothionein III - pig  
 N:Alternate names: neuron growth inhibitory factor  
 C:Species: Sus scrofa domestica (domestic pig)  
 C>Date: 21-Aug-1998 #sequence\_revision 21-Aug-1998 #text\_change 09-Jul-2004  
 C:Accession: JC6521  
 R:Wang, S.H.; Chang, C.Y.; Chen, C.F.; Tam, M.F.; Shih, Y.H.; Lin, L.Y.  
 Gene 203, 189-197, 1997  
 A>Title: Cloning of porcine neuron growth inhibitory factor (metallothionein III) cDNA ar  
 A:Reference number: JC6521; MUID:98086219; PMID:9426250  
 A:Accession: JC6521  
 A:Molecule type: mRNA  
 A:Residues: 1-68 <WAN>  
 A:CROSS-references: UNIPROT:P55944; GB:U95969; NID:G2073001; PIDN:AA39165.1; PID:G207301  
 A:Experimental source: brain  
 C:Comment: This protein is a growth inhibitory factor, and it can be induced by metals, i  
 C:Genetics: mtIII  
 A:Gene: mtIII  
 C:Superfamily: metallothionein  
 C:Keywords: brain; metal binding  
 Query Match 36.8%; Score 60; DB 2; Length 68;

```
Best Local Similarity 32.1%; Pred. No. 1.4;
Matches 9; Conservative 5; Mismatches 14; Indels 0; Gaps 0;

QY 1 CKSXGTXCSRGMRDCTCTCLSYSNKRR 28
Db 20 CKCEGCKTCKSKKSCSCCPABCEKCAK 47

RESULT 13
A46034
M:Allothionein 3, brain-specific - mouse
N:Alternate names: neurotrophic growth inhibitory factor
C:Species: Mus musculus (house mouse)
C:Date: 21-Sep-1993 #sequence_revision 18-Nov-1994 #text_change 09-Jul-2004
C:Accession: A46034
R:Palmiter, R.D.; Findley, S.D.; Whitmore, T.E.; Durnam, D.M.
Proc. Natl. Acad. Sci. U.S.A. 89, 6333-6337, 1992
A:Title: MT-III, a brain-specific member of the metallothionein gene family.
A:Reference number: A46034; MUID:92335292; PMID:1631128
A:Accession: A46034
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 1-68 <PAL>
A:Cross-references: UNIPROT:P28184; GB:M93310; NID:g199133; PIDN:AAA39529.1; PID:g199134
A:Note: sequence extracted from NCBI backbone (NCBIN:108715, NCBIN:111115, NCBIP:108716)
C:Superfamily: metallothionein

Query Match 36.8%; Score 60; DB 2; Length 68;
Best Local Similarity 32.1%; Pred. No. 1.4;
Matches 9; Conservative 5; Mismatches 14; Indels 0; Gaps 0;

QY 1 CKSXGTXCSRGMRDCTCTCLSYSNKRR 28
Db 20 CKCKGCKTCKSKKSCSCCPAGCEKCAK 47

RESULT 14
JH0701
omega-conotoxin MVIIIB - cone shell (Conus magus)
C:Species: Conus magus (magus cone)
C:Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 09-Jul-2004
C:Accession: JH0701; B34115
R:Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadasdi, L.; Ramachandran, J.; M
Neuron 9, 69-77, 1992
A:Title: A new conus peptide ligand for mammalian presynaptic Ca2+ channels.
A:Reference number: JH0699; MUID:92337922; PMID:1352986
A:Accession: JH0701
A:Status: nucleic acid sequence not shown
A:Molecule type: mRNA
A:Residues: 1-25 <HIL>
A:Cross-references: UNIPROT:P05485
R:Olivera, B.M.; Cruz, L.J.; de Santos, V.; LeCheminant, G.W.; Griffin, D.; Zeikus, R.;
Biochemistry 26, 2086-2090, 1987
A:Title: Neuronal calcium channel antagonists. Discrimination between calcium channel su
A:Reference number: A34115; MUID:87299637; PMID:2441741
A:Accession: B34115
A:Molecule type: protein
A:Residues: 1-25 <OLI>
C:Superfamily: omega-conotoxin
C:Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh
F:1-16,8-20,15-25/disulfide bonds: #status predicted
F:25/Modified site: amidated carboxyl end (Cys) #status predicted

Query Match 35.9%; Score 58.5; DB 2; Length 25;
Best Local Similarity 55.0%; Pred. No. 1.1;
Matches 11; Conservative 0; Mismatches 8; Indels 1; Gaps 1;

QY 1 CKSXGTXCSRGMRDCTCT-SC 19
Db 1 CKKGKASCHRTSYDCTGSC 20

RESULT 15
```

```
S03997
Protamine 1 - rat
C:Species: Rattus norvegicus (Norway rat)
C:Date: 28-Feb-1990 #sequence_revision 28-Feb-1990 #text_change 09-Jul-2004
C:Accession: S03997; S02023
R:Klemm, U.; Lee, C.H.; Burfeind, P.; Hake, S.; Engel, W.
Biol. Chem. Hoppe-Seyler 370, 293-301, 1989
A:Title: Nucleotide sequence of a cDNA encoding rat protamine and the haploid expression
A:Reference number: S03997; MUID:89335257; PMID:2757789
A:Accession: S03997
A:Status: not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-51 <KLE>
A:Cross-references: UNIPROT:P10118
R:Ammer, H.; Henschen, A.
Biol. Chem. Hoppe-Seyler 369, 1301-1306, 1988
A:Title: Rat sperm protamine. Isolation and sequence analysis.
A:Reference number: S02023; MUID:89207111; PMID:3072011
A:Accession: S02023
A:Molecule type: protein
A:Residues: 2-51 <AMM>
C:Superfamily: sperm histone
C:Keywords: DNA binding; nucleus
F:2-51/Product: protamine 1 #status experimental <MAT>

Query Match 35.6%; Score 58; DB 2; Length 51;
Best Local Similarity 45.5%; Pred. No. 2;
Matches 10; Conservative 3; Mismatches 9; Indels 0; Gaps 0;

QY 8 CSRGMRDCTCTCLSYSNKCRY 29
Db 30 CRRRRRCRRRRSYTFCKRY 51

Search completed: March 22, 2005, 22:54:20
Job time : 17.2706 secs
```

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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:45:36 ; Search time 77.429 Seconds  
(without alignments)  
191.792 Million cell updates

**Title:** US-09-787-082A-16  
**perfect score:** 163  
**Sequence:** 1 CKSKGTGTCRGRDCTCCLSYSNKCRRY 29

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

**Total number of hits satisfying chosen parameters: 1612378**

Minimum DB seq length: 0

Maximum DB seq length:	2000000000
Maximum DB seq length:	2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

### Listing first 45 summaries

Database : UniProt 03:★

```
1: uniprot_sp
```

2: uniprot\_trembl:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query %			DB	ID	Description
		Match	Length				
1	151	92.6	29	1	CX07	CONGE	P05483 conus geogr
2	75	46.0	27	1	CX06	CONRA	P58914 conus radia
3	75	46.0	73	1	CX06	CONGE	P01522 conus geogr
4	74	45.4	26	1	CX06	CONCU	P58915 conus tulip
5	74	45.4	26	1	CX0C	CONCT	P58919 conus catus
6	71.5	43.9	71	1	CX0A	CONMA	P05484 conus magus
7	68.5	42.0	73	1	CX0D	CONCT	P58920 conus catus
8	66.5	40.8	27	1	CX07	CONCN	P58915 conus conso
9	65.5	40.2	66	2	Q9N625		Q9N625 conus catus
10	65.5	40.2	66	2	Q9N628		Q9N628 conus catus
11	65.5	40.2	66	2	Q9NCW2		Q9NCW2 conus catus
12	65.5	40.2	71	1	CX0A	CONCT	P58917 conus catus
13	64.5	39.6	66	2	Q9NCW1		Q9NCW1 conus catus
14	63.5	39.0	66	2	Q9NCV6		Q9NCV6 conus catus
15	62.5	38.3	66	2	Q9NGN6		Q9N6N6 conus stria
16	62.5	38.3	66	2	Q9NCU1		Q9NCU1 conus stria
17	62.5	38.3	66	2	Q9NCV0		Q9NCV0 conus stria
18	62.5	38.3	66	2	Q9NCV4		Q9NCV4 conus stria
19	62	38.0	29	1	CX0C	CONMA	P37300 conus magus
20	61	37.4	35	1	AD01	AGRDO	P58608 agriosphodr
21	61	37.4	36	1	IOB1	TSYOB	P58609 isynodus obs
22	61	37.4	49	2	Q988I5		Q988I5 leuciscus c
23	61	37.4	60	1	MT	RUTRU	P80593 rutilus rut
24	61	37.4	68	1	MT3	BOVIN	P37359 bos taurus
25	60.5	37.1	66	2	Q9N633		Q9N633 conus catus
26	60.5	37.1	66	2	Q9NCV1		Q9NCV1 conus stria
27	60.5	37.1	66	2	Q9NCV2		Q9NCV2 conus stria
28	60.5	37.1	66	2	Q9NCV3		Q9NCV3 conus stria
29	60.5	37.1	66	2	Q9NCW3		Q9NCW3 conus catus
30	60.5	37.1	66	2	Q9NCW5		Q9NCW5 conus catus
31	60.5	37.1	66	2	Q9NCW6		Q9NCW6 conus catus

## ALIGNMENTS

## RESULT 1

CK07_CONGE	CK07_CONGE	STANDARD;	PRT;	29 AA.
ID	CK07_CONGE	STANDARD;	PRT;	29 AA.
AC	P05483;			
DT	01-NOV-1988 (Rel. 09, Created)			
DT	01-NOV-1988 (Rel. 09, Last sequence update)			
DT	25-OCT-2004 (Rel. 45, Last annotation update)			
DE	Omega-conotoxins GVIIA/GVIIIB (Shaker peptides GVIIA/GVIIIB) (SNX-178) (SNX-178) (SNX-178)			
OS	Conus geographus (Geography cone).			
OC	Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;			
OC	Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;			
OC	Neogastropoda; Conoidea; Conidae; Conus.			
OX	NCBI_TaxID=6491;			
RN	[1]			
RP	SEQUENCE.			
RX	MEDLINE=86070213; PubMed=4071055;			
RA	Olivera B.M., Gray W.R., Zeikus R.D., McIntosh J.M., Varga J.,			
RA	Rivier J.E., de Santos V., Cruz L.J.;			
RT	"Peptide neurotoxins from fish-hunting cone snails."			
RL	Science 230:1338-1343(1985).			

CC - TISSUE SPECIFICITY: Expressed by the venom duct.

## RESULT 2

AC	PS8914;		
DT	28-FEB-2003	(Rel. 41, Created)	
DT	28-FEB-2003	(Rel. 41, Last sequence update)	

05-JUL-2004 (Rel. 44, Last annotation update)  
Omega-conotoxin GVIA.  
Conus radiatus (Rayed cone).  
Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
Neogastropoda; Conoidea; Conidae; Conus.  
NCBI\_TaxID=61198;  
[1]  
SEQUENCE  
RA Miljanich G.P., Bitner R.S., Bowersox S.S., Fox J.A., Valentino K.L.,  
RA Yamashiro D.H.;  
RA "Method of treating ischemia-related neuronal damage.";  
RL Patent number US5051403, 24-SEP-1991.  
CC - FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind  
CC and block voltage-sensitive calcium channels (VSCC).  
CC - SUBCELLULAR LOCATION: Secreted.  
CC - TISSUE SPECIFICITY: Expressed by the venom duct.  
CC - SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type  
CC family.  
KW Calcium channel inhibitor; Direct protein sequencing; Hydroxylation;  
KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Toxin.  
FT DISULFID 1 16  
FT DISULFID 8 19  
FT DISULFID 15 26  
FT MOD\_RES 4 4 Hydroxyproline.  
FT MOD\_RES 7 7 Hydroxyproline.  
FT MOD\_RES 27 AA; 2887 MW; P554CLF8A01A88AF CRC64;  
SQ SEQUENCE 27 AA; 2887 MW; P554CLF8A01A88AF CRC64;  
Query Match 46.0%; Score 75; DB 1; Length 27;  
Best Local Similarity 46.2%; Pred. No. 0.012;  
Matches 12; Conservative 4; Mismatches 10; Indels 0; Gaps 0;  
QY 1 CKSXTGTCRGNRDCSTCLSYNKC 26  
DB 1 CKPGSPCRVSSNCCSKSYNKC 26  
RESULT 3  
CX06\_CONGE  
ID CX06\_CONGE STANDARD; PRT; 73 AA.  
AC P01522;  
DC 21-JUL-1986 (Rel. 01, Created)  
DT 01-FEB-1994 (Rel. 28, Last sequence update)  
DT 25-OCT-2004 (Rel. 45, Last annotation update)  
DE Omega-conotoxin GVIA precursor (Shaker peptide) (SNK-124) [Contains:  
DE Omega-conotoxin GVIB; Omega-conotoxin GVIC].  
OS Conus geographus (Geography cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=6491;  
RN [1]  
SEQUENCE FROM N.A.  
RX MEDLINE=93069266; PubMed=1440648; DOI=10.1016/0041-0101(92)90056-B;  
RA Colledge C.J., Hunsperger J.P., Imperial J.S., Hillyard D.R.;  
RT "Precursor structure of omega-conotoxin GVIA determined from a cDNA  
RT clone.";  
RL Toxinon 30:1111-1116 (1992).  
RN [2]  
SEQUENCE OF 46-72 (GVIA).  
RX MEDLINE=85072796; PubMed=6509012;  
RA Olivera B.M., McIntosh J.M., Cruz L.J., Luque P.A., Gray W.R.;  
RT "Purification and sequence of a presynaptic peptide toxin from Conus  
RT geographus venom.";  
RL Biochemistry 23:5087-5090 (1984).  
RN [3]  
SEQUENCE OF 46-73 (GVIB AND GVIC).  
RX MEDLINE=86070213; PubMed=4071055;  
RA Olivera B.M., Gray W.R., Zeikus R.D., McIntosh J.M., Varga J.,  
RA Rivier J.E., de Santos V., Cruz L.J.;  
RT "Peptide neurotoxins from fish-hunting cone snails.";  
RL Science 230:1338-1343 (1985).  
RN [4]  
SYNTHESIS OF GVIA, AND DISULFIDE BONDS.  
RX MEDLINE=87049928; PubMed=3779030;  
RA Nishichi Y., Kumagaye K., Noda Y., Watanabe T.X., Sakakibara S.;  
RT "Synthesis and secondary-structure determination of omega-conotoxin  
RT GVIA: a 27-peptide with three intramolecular disulfide bonds.";  
RL Biopolymers 25:S61-S68 (1986).  
RN [5]  
MUTAGENESIS OF LYS-47; ARG-62; LYS-69 AND ARG-70.  
RX MEDLINE=93356803; PubMed=8394704;  
RA Sato K., Park N.G., Kohno T., Maeda T., Kim J.I., Kato R.,  
RA Takahashi M.;  
RT "Role of basic residues for the binding of omega-conotoxin GVIA to N-  
RT type calcium channels.";  
RL Biochem. Biophys. Res. Commun. 194:1292-1296 (1993).  
RN [6]  
MUTAGENESIS OF TYR-58.  
RX MEDLINE=95014108; PubMed=7929033;  
RA Kim J.I., Takahashi M., Ogura A., Kohno T., Kudo Y., Sato K.;  
RT "Hydroxyl group of Tyr13 is essential for the activity of omega-  
RT conotoxin GVIA, a peptide toxin for N-type calcium channel.";  
RL J. Biol. Chem. 269:23876-23878 (1994).  
RN [7]  
SYNTHESIS, MUTAGENESIS OF LYS-47; TYR-58; ARG-62; TYR-67 AND LYS-69,  
AND STRUCTURE BY NMR.  
RX MEDLINE=97277345; PubMed=9115267; DOI=10.1074/jbc.272.18.12014;  
RA Lew M.J., Flinn J.P., Pallaghy P.K., Murphy R., Whorlow S.L.,  
RA Wright C.E., Norton R.S., Angus J.A.;  
RT "Structure-function relationships of omega-conotoxin GVIA. Synthesis,  
RT structure, calcium channel binding, and functional assay of alanine-  
RT substituted analogues.";  
RL J. Biol. Chem. 272:12014-12023 (1997).  
RN [8]  
STRUCTURE BY NMR OF GVIA.  
RX MEDLINE=93282829; PubMed=8343203;  
RA Sevilla P., Bruix M., Santoro J., Gago F., Garcia A.G., Rico M.;  
RT "Three-dimensional structure of omega-conotoxin GVIA determined by 1H  
RT NMR.";  
RL Biochem. Biophys. Res. Commun. 192:1238-1244 (1993).  
RN [9]  
STRUCTURE BY NMR OF GVIA.  
RX MEDLINE=93332945; PubMed=8338837;  
RA Davis J.H., Bradley E.K., Miljanich G.P., Nadasdi L., Ramachandran J.,  
RA Basus V.J.;  
RT "Solution structure of omega-conotoxin GVIA using 2-D NMR spectroscopy  
RT and relaxation matrix analysis.";  
RL Biochemistry 32:7396-7405 (1993).  
RN [10]  
STRUCTURE BY NMR OF GVIA.  
RX MEDLINE=94047089; PubMed=8230223;  
RA Pallaghy P.K., Duggan B.M., Pennington M.W., Norton R.S.;  
RT "Three-dimensional structure in solution of the calcium channel  
RT blocker omega-conotoxin.";  
RL J. Mol. Biol. 234:405-420 (1993).  
RN [11]  
STRUCTURE BY NMR OF GVIA.  
RX MEDLINE=94073074; PubMed=8251934;  
RA Skalicky J.J., Metzler W.J., Ciesla D.J., Galdes A., Pardi A.;  
RT "Solution structure of the calcium channel antagonist omega-conotoxin  
RT GVIA.";  
RL Protein Sci. 2:1591-1603 (1993).  
RN [12]  
STRUCTURE BY NMR OF GVIA.  
RX MEDLINE=95248506; PubMed=10231724;  
RA Pallaghy P.K., Norton R.S.;  
RT "Refined solution structure of omega-conotoxin GVIA: implications for  
RT calcium channel binding.";  
RL J. Pept. Res. 53:343-351 (1999).  
RN [13]  
REVIEW.  
RX MEDLINE=20283152; PubMed=10822250;  
DOI=10.1002/(SICI)1099-1352(200003/04)13:2:55::AID-JMR488>3.0.CO;2-O;  
RA Nielsen K.J., Schroeder T., Lewis R.;  
RT "Structure-activity relationships of omega-conotoxins at N-type

RT voltage-sensitive calcium channels.";

RL J. Mol. Recognit. 13:55-70(2000).

CC -|- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind

CC and block voltage-sensitive calcium channels (VSCC).

CC -|- SUBCELLULAR LOCATION: Secreted.

CC -|- TISSUE SPECIFICITY: Expressed by the venom duct.

CC -|- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type

CC family.

CC -----

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CC -----

DR EMBL; M84612; AAA81590.1; -

DR PIR; A44006; NTKN6G.

DR PDB; 1OMC; NMR; @=46-73.

DR PDB; 2CCO; NMR; @=46-73.

DR InterPro; IPR004214; Conotoxin.

DR Pfam; PF02950; Conotoxin; 1.

KW 3D-structure; Amidation; Calcium channel inhibitor;

KW Direct protein sequencing; Hydroxylation; Ionic channel inhibitor;

KW Neurotoxin; Presynaptic neurotoxin; Signal; Toxin.

FT SIGNAL 1 22 Potential.

FT PROPEP 23 45

FT PEPTIDE 46 73

FT PEPTIDE 46 72

FT PEPTIDE 46 71

FT MOD\_RES 49 49

FT MOD\_RES 55 55

FT MOD\_RES 66 66

FT MOD\_RES 72 72

FT DISULFID 46 61

FT DISULFID 53 64

FT DISULFID 60 71

FT MUTAGEN 47 47

FT MUTAGEN 58 58

FT MUTAGEN 58 58

FT MUTAGEN 62 62

FT MUTAGEN 67 67

FT MUTAGEN 69 69

FT MUTAGEN 70 70

FT STRAND 47 47

FT TURN 49 50

FT STRAND 52 52

FT TURN 55 58

FT STRAND 60 60

FT STRAND 64 65

FT TURN 66 69

FT STRAND 70 71

SQ SEQUENCE 73 AA; 7851 MW; 51A8C8FA630F7175 CRC64;

Query Match 46.0%; Score 75; DB 1; Length 73;

Best Local Similarity 46.2%; Pred. No. 0.027;

Matches 12; Conservative 4; Mismatches 10; Indels 0; Gaps 0;

QY 1 CKSXGTXCSRGRMDCCTCLSYSNKC 26

DB 46 CKSPGSCSPTSYNCCRCNPNYKRC 71

RESULT 4

CKX6 CONTU STANDARD; PRT; 26 AA.

ID CKX6 CONTU

AC P58915;

DT 28-FEB-2003 (Rel. 41, Created)

DT 28-FEB-2003 (Rel. 41, Last sequence update)

DT 05-JUL-2004 (Rel. 44, Last annotation update)

DE Omega-conotoxin TVIA (SMX-185).

OS Conus tulipa (Fish-hunting cone snail) (Tulip cone).

OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;

OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;

OC Neogastropoda; Conoidea; Conidae; Conus.

OX NCBI\_TaxID=6495;

RN [1]

RP SEQUENCE, SYNTHESIS, AND DISULFIDE BONDS.

RX MEDLINE=96122182; PubMed=8537186;

RA Chung D., Gaur S., Bell J.R., Ramachandran J., Nadasdi L.;

RT "Determination of disulfide bridge pattern in omega-conopeptides.";

RL Int. J. Pept. Protein Res. 46:320-325(1995).

RN [2]

RP SEQUENCE OF 1-16.

RA Miljanich G.P., Bitner R.S., Bowersox S.S., Fox J.A., Valentino K.L.,

RA Yamashiro D.H.;

RT "Method of treating ischemia-related neuronal damage.";

RL Patent number US5051403, 24-SEP-1991.

RN [3]

RP REVIEW.

RX MEDLINE=95321729; PubMed=7598513;

RX DOI=10.1146/annurev.pa.35.040195.003423;

RA Miljanich G.P., Ramachandran J.;

RT "Antagonists of neuronal calcium channels: structure, function, and

RT therapeutic implications.";

RL Annu. Rev. Pharmacol. Toxicol. 35:707-734(1995).

CC -|- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind

CC and block voltage-sensitive calcium channels (VSCC).

CC -|- SUBCELLULAR LOCATION: Secreted.

CC -|- TISSUE SPECIFICITY: Expressed by the venom duct.

CC -|- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type

CC family.

KW Calcium channel inhibitor; Direct protein sequencing; Hydroxylation;

KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Toxin.

FT DISULFID 1 16

FT DISULFID 8 19

FT DISULFID 15 26

FT MOD\_RES 4 4

FT MOD\_RES 10 10

FT MOD\_RES 21 21

FT MOD\_RES 26 AA; 2804 MW; A70926F3871A7883 CRC64;

SQ SEQUENCE 26 AA; 2804 MW; A70926F3871A7883 CRC64;

Query Match 45.4%; Score 74; DB 1; Length 26;

Best Local Similarity 50.0%; Pred. No. 0.015;

Matches 13; Conservative 2; Mismatches 11; Indels 0; Gaps 0;

QY 1 CKSXGTXCSRGRMDCCTCLSYSNKC 26

DB 1 CLSPGSCSPTSYNCCRCNPNYKRC 26

RESULT 5

CKXC CONCT STANDARD; PRT; 26 AA.

ID CKXC CONCT

AC P58919;

DT 28-FEB-2003 (Rel. 41, Created)

DT 28-FEB-2003 (Rel. 41, Last sequence update)

DT 05-JUL-2004 (Rel. 44, Last annotation update)

DE Omega-conotoxin CVIC.

OS Conus catus (Cat cone).

OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;

OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;

OC Neogastropoda; Conoidea; Conidae; Conus.

OX NCBI\_TaxID=101291;

RN [1]

RP SEQUENCE, AND SYNTHESIS.

RX TISSUE=Venom;

RX MEDLINE=20519630; PubMed=10938268; DOI=10.1074/jbc.M002252200;

RA Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,

RA Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,

RA Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;

RA Chung D., Gaur S., Bell J.R., Ramachandran J., Nadasdi L.;  
RT "Determination of disulfide bridge pattern in omega-conopeptides.";

InterPro; IPR004214; Conotoxin.  
Pfam; PF02950; Conotoxin; 1.



KW 3D-structure; Amidation; Calcium channel inhibitor;  
 KW Direct protein sequencing; Ionic channel inhibitor; Neurotoxin;  
 KW Pharmaceutical; Presynaptic neurotoxin; Signal; Toxin.  
 FT SIGNAL 1 22  
 FT PROPEP 23 45  
 FT PEPTIDE 46 70  
 FT DISULFID 46 61  
 FT DISULFID 53 65  
 FT DISULFID 60 70  
 FT MOD\_RES 70 70

Omega-conotoxin MWIIa.

FT MUTAGEN 47 47  
 FT MUTAGEN 58 58  
 SQ SEQUENCE 71 AA; 7587 MW; EZA32725C81AF31D CRC64;  
 Cysteine amide (G-71 provides amide group).  
 K->A: Little decrease in activity.  
 Y->A: Strong decrease in activity.

Query Match 43.9%; Score 71.5; DB 1; Length 71;

Best Local Similarity 59.3%; Pred. No. 0.074; Mismatches 8; Indels 3; Gaps 2;

Matches 16; Conservative 0; PRT; 73 AA.  
 QY 1 CKSXGTGSRGMRDCT-SCLSYSNKC 26  
 DB 46 CKKGAKCSRLMYDCTGSC--RSKGC 70

#### RESULT 7

ID CKOD CONCT STANDARD; PRT; 73 AA.  
 AC P58920;

DT 28-FEB-2003 (Rel. 41, Created)

DT 28-FEB-2003 (Rel. 41, Last sequence update)

DT 05-JUL-2004 (Rel. 44, Last annotation update)

DE Omega-conotoxin CVID precursor.

OS Conus catus (Cat cone).

OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;

OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;

OC Neogastropoda; Conoidea; Conidae; Conus.

OX NCBI\_TaxID=101291;

RN [1]

RP SEQUENCE FROM N.A., SEQUENCE OF 46-72, SYNTHESIS, AND STRUCTURE BY NMR.

RC TISSUE=Venom, and Venom duct;

RX MEDLINE=20519630; PubMed=10938268; DOI=10.1074/jbc.M002252200;

RA Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,

RA Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,

RA Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;

RT "Novel Omega-Conotoxins from Conus catus discriminate among neuronal

calcium channel subtypes.";

RL J. Biol. Chem. 275:35335-35344 (2000).

CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind

and block voltage-sensitive calcium channels (VSCC) (By

similarity). This toxin blocks N-type calcium channels.

CC -!- SUBCELLULAR LOCATION: Secreted.

CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.

CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type

family.

DR HSP; P05484; 1DW4.

DR InterPro; IPR004214; Conotoxin.

DR Pfam; PF02950; Conotoxin; 1.

KW Amidation; Calcium channel inhibitor; Direct protein sequencing;

KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Signal;

KW Toxin.

FT SIGNAL 1 22  
 FT PROPEP 23 45  
 FT PEPTIDE 46 72  
 FT DISULFID 46 61  
 FT DISULFID 53 65  
 FT DISULFID 60 72  
 FT MOD\_RES 72 72

FT SEQUENCE 73 AA; 7748 MW; C4CEBD30C77DAEC3 CRC64;  
 Cysteine amide (G-73 provides amide group).

Query Match 42.0%; Score 68.5; DB 1; Length 73;  
 Best Local Similarity 48.1%; Pred. No. 0.18;

Matches 13; Conservative 3; Mismatches 10; Indels 1; Gaps 1;  
 QY 1 CKSXGTGSRGMRDCT-SCLSYSNKC 26  
 DB 46 CKSKGAKCSRLMYDCCSGSCSGTVCRC 72

#### RESULT 8

ID CKO7 CONCN STANDARD; PRT; 27 AA.  
 AC P58916;

DT 28-FEB-2003 (Rel. 41, Created)

DT 28-FEB-2003 (Rel. 41, Last sequence update)

DT 25-OCT-2004 (Rel. 45, Last annotation update)

DE Omega-conotoxin CNVIIA.

OS Conus consors (Singed cone).

OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;

OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;

OC Neogastropoda; Conoidea; Conidae; Conus.

OX NCBI\_TaxID=101297;

RN [1]

RP SEQUENCE, SYNTHESIS, AND MASS SPECTROMETRY.

RC TISSUE=Venom;

RX MEDLINE=21581542; PubMed=11724570; DOI=10.1021/bi002871r;

RA Favreau P., Gilles N., Lamthann H., Bournaud R., Shimahara T.,

RA Bouet F., Laboute P., Letourneux Y., Menez A., Molgo J., Le Gall F.;

RT "A new omega-conotoxin that targets N-type voltage-sensitive calcium

channels with unusual specificity.";

RL Biochemistry 40:14567-14575 (2001).

CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind

and block voltage-sensitive calcium channels (VSCC). This toxin

blocks N-type calcium channels, but unexpectedly, does not show

any blocking activity at amphibian neuromuscular junction. Causes

shaking activity, and, at higher doses, causes mild tremors when

injected intracerebroventricularly into mice. Causes paralysis,

and, at higher doses, causes death when injected intramuscularly

into fish.

CC -!- SUBCELLULAR LOCATION: Secreted.

CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.

CC -!- MASS SPECTROMETRY: MW=2847.74; METHOD=Electrospray; RANGE=1-27;

CC NOTE=Ref.1.

CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type

family.

DR HSP; P05484; 1DW4.

KW Amidation; Calcium channel inhibitor; Direct protein sequencing;

KW Hydroxylation; Ionic channel inhibitor; Neurotoxin;

KW Presynaptic neurotoxin; Toxin.

FT BINDING 13 13 Essential for calcium channel binding (By

similarity).

FT DISULFID 1 16 By similarity.

FT DISULFID 8 20 By similarity.

FT DISULFID 15 27 By similarity.

FT MOD\_RES 7 7 4-hydroxyproline.

FT MOD\_RES 27 27 Cysteine amide.

SQ SEQUENCE 27 AA; 2839 MW; B9DEFD1491F2CB4A CRC64;

Query Match 40.8%; Score 66.5; DB 1; Length 27;

Best Local Similarity 48.1%; Pred. No. 0.14;

Matches 13; Conservative 2; Mismatches 11; Indels 1; Gaps 1;

QY 1 CKSXGTGSRGMRDCC-TSCLSYSNKC 26

DB 1 CKKGAPCTRLMYDCCGSCSSSKGRC 27

#### RESULT 9

ID Q9N625 PRELIMINARY; PRT; 66 AA.

AC Q9N625;

DT 01-OCT-2000 (TRENBLrel. 15, Created)

DT 01-OCT-2000 (TRENBLrel. 15, Last sequence update)

DT 05-JUL-2004 (TRENBLrel. 27, Last annotation update)

DE Four-loop conotoxin (Fragment).

OS Conus catus (Cat cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174222; AAF89892.1; -  
 DR EMBL; AF174222; AAF89886.1; -  
 DR EMBL; AF174224; AAF89888.1; -  
 DR EMBL; AF174225; AAF89889.1; -  
 DR EMBL; AF174221; AAF89885.1; -  
 DR HSSP; P05484; 1FEO.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 DR GO; GO:0009405; P:pathogenesis; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 FT NON\_TER 1  
 SQ SEQUENCE 66 AA; 7056 MW; EA11338A6968B7DA CRC64;

Query Match 40.2%; Score 65.5; DB 2; Length 66;  
 Best Local Similarity 59.1%; Pred. No. 0.4;  
 Matches 13; Conservative 0; Mismatches 8; Indels 1; Gaps 1;

OY 1 CKSXGTGCSRGMRDCCCT-SCLS 21  
 |||||  
 DB 41 CKSTGASCRRTSYDCTGSCRS 62

## RESULT 10

ID Q9NC628 PRELIMINARY; PRT; 66 AA.  
 AC P58917;  
 DT 01-OCT-2000 (TrEMBLrel. 15, Created)  
 DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)  
 DE Four-loop conotoxin (Fragment).  
 OS Conus catus (Cat cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174229; AAF89893.1; -  
 DR EMBL; AF174226; AAF89890.1; -  
 DR HSSP; P05484; 1FEO.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 DR GO; GO:0009405; P:pathogenesis; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 FT NON\_TER 1  
 SQ SEQUENCE 66 AA; 7057 MW; E7AA5E310968B7DA CRC64;

Query Match 40.2%; Score 65.5; DB 2; Length 66;  
 Best Local Similarity 59.1%; Pred. No. 0.4;  
 Matches 13; Conservative 0; Mismatches 8; Indels 1; Gaps 1;

OY 1 CKSXGTGCSRGMRDCCCT-SCLS 21  
 |||||  
 DB 41 CKSTGASCRRTSYDCTGSCRS 62

## RESULT 11

Q9NCW2 PRELIMINARY; PRT; 66 AA.  
 ID Q9NCW2  
 AC Q9NCW2;

DT 01-OCT-2000 (TrEMBLrel. 15, Created)  
 DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)  
 DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)  
 DE Four-loop conotoxin (Fragment).  
 OS Conus catus (Cat cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174223; AAF89887.1; -  
 DR HSSP; P05484; 1FEO.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 DR GO; GO:0009405; P:pathogenesis; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 FT NON\_TER 1  
 SQ SEQUENCE 66 AA; 7026 MW; EA11339E382DB7DA CRC64;

Query Match 40.2%; Score 65.5; DB 2; Length 66;  
 Best Local Similarity 59.1%; Pred. No. 0.4;  
 Matches 13; Conservative 0; Mismatches 8; Indels 1; Gaps 1;

OY 1 CKSXGTGCSRGMRDCCCT-SCLS 21  
 |||||  
 DB 41 CKSTGASCRRTSYDCTGSCRS 62

## RESULT 12

ID CXOA\_CONCT STANDARD; PRT; 71 AA.  
 AC P58917;  
 DT 28-FEB-2003 (Rel. 41, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Omega-conotoxin CVIA precursor.  
 OS Conus catus (Cat cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;  
 RN [1]  
 RP SEQUENCE FROM N.A.; SEQUENCE OF 46-70, AND SYNTHESIS.  
 RC TISSUE=Venom, and Venom duct;  
 RX MEDLINE=20519630; PubMed=10938268; DOI=10.1074/jbc.M00252200;  
 RA Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,  
 RA Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,  
 RA Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;  
 RT "Novel omega-conotoxins from Conus catus discriminate among neuronal calcium channel subtypes."  
 RJ J. Biol. Chem. 275:35335-35344(2000).  
 CC -1- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind and block voltage-sensitive calcium channels (VSCC) (By similarity). This toxin blocks N-type calcium channels.  
 CC -1- SUBCELLULAR LOCATION: Secreted.  
 CC -1- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -1- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type family.  
 CC HSSP; P05484; 1FEO.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 KW Amidation; Calcium channel inhibitor; Direct protein sequencing;  
 KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Signal;  
 KW Toxin.  
 FT SIGNAL 1 22 Potential.  
 FT PROPEP 23 45 Omega-conotoxin CVIA.  
 FT PEPTIDE 46 70 By similarity.  
 FT DISULFID 46 61 By similarity.  
 FT DISULFID 53 65

Qy	1	CKSXGTXC	SRGMRD	CCCT-SCLS	21
Db	46	CKSTGASCR	RTSYD	CCCTGSCRS	67

FT	NON TER	1	1
SQ	SEQUENCE	66 AA;	7066 MW; EAL1338A6968B415 CRC64;

Qy 1 CKSXGTXCSRGMRDCT-SCLS 21  
Db 41 CKSTGASCRRTPYDCTGSCRS 62

RESULT 14  
 Q9NCV6 PRELIMINARY; PRT; 66 AA.  
 Q9NCV6;  
 01-OCT-2000 (TrEMBLrel. 15, Created)  
 01-OCT-2000 (TrEMBLrel. 15, last sequence update)  
 01-OCT-2003 (TrEMBLrel. 25, last annotation update)  
 Four-loop conotoxin (Fragment).  
 Conus catus (Cat cone).  
 Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda  
 Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda  
 Neogastropoda; Conoidea; Conidae; Conus.  
 NCBI\_TaxID=101291;  
 [1] \_SEQUENCE FROM N.A.  
 Duda T.F., Palumbi S.R.;  
 Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases  
 EMBL; AF174237; AAF89901.1; -.  
 HSSP; P05484; 1FE0.  
 GO; GO:0005576; C:extracellular; IEA.  
 GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 GO; GO:0009405; P:pathogenesis; IEA.  
 InterPro; IPR004214; C:Conotoxin.

Qy 1 CKSXGTXCSRGMRDCT-SC 19  
||| | | | | |  
db 41 CKSTGASCRRTSYDCCTGSC 60

FT	NON_TER	1	1
SQ	SEQUENCE	66 AA;	6966 MW; 29A992710CA7DA05 CRC64;

Qy 1 CKSXGTXCSRGMRDCT-SCLSYSNKC 26  
|||:| ||||: ||||| ||| |||  
Db 41 CKAAGKCSRIAYNCTGSC--RSGKC 65

Search completed: March 23, 2005, 00:16:41  
Job time : 78.429 secs

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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:44:17 ; Search time 87.3267 Seconds  
(without alignments)  
119.580 Million cell updates/sec

Title: US-09-787-082a-17  
Perfect score: 146  
Sequence: 1 CLXGSSCSXTSYNCCSNXYSKRK 27

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : A\_Geneseq\_16Dec04:\*

- 1: Geneseqp1980s:\*
- 2: Geneseqp1990s:\*
- 3: Geneseqp2000s:\*
- 4: Geneseqp2001s:\*
- 5: Geneseqp2002s:\*
- 6: Geneseqp2003as:\*
- 7: Geneseqp2003bs:\*
- 8: Geneseqp2004s:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	140	95.9	27	2	AAR32783 TVIA omeg
2	140	95.9	27	2	AAW12973 Omega con
3	140	95.9	27	3	AAV56479 Natural o
4	137	93.8	27	2	AAR39614 TVIA/SNX1
5	137	93.8	27	2	AAR37759 TVIA/SNX-
6	137	93.8	27	2	AAR76095 Omega con
7	137	93.8	27	2	AAW19550 Natural o
8	137	93.8	27	2	AAW19550 Conus gen
9	137	93.8	27	2	AAW95570 Omega-con
10	137	93.8	27	2	AAV42340 Omega-con
11	137	93.8	27	3	AAW14358 Omega-con
12	137	93.8	27	4	AAW19448 Primary s
13	137	93.8	73	5	ABW96688 Omega-con
14	129	88.4	27	2	AAW12986 Omega con
15	129	88.4	27	3	AAV56497 Analogue
16	129	88.4	27	3	AAW14371 Omega-con
17	128	87.7	27	2	AAW12996 Omega con
18	128	87.7	27	2	AAW72627 Conus gen
19	128	87.7	27	3	AAV56498 Analogue
20	128	87.7	27	3	AAW14378 Omega-con
21	128	87.7	27	4	AAW19464 Sequence
22	127	87.0	27	2	AAR39630 SNX-236.
23	127	87.0	27	2	AAR39629 SNX-207.
24	127	87.0	27	2	AAR37776 SNX-236.
25	127	87.0	27	2	AAR37775 SNX-207.

26	127	87.0	27	2	AAW19572	AAW19572 SNX-236,
27	127	87.0	27	2	AAW72626	Conus gen
28	127	87.0	27	2	AAW95585	Analogue
29	127	87.0	27	2	AAW95586	Analogue
30	127	87.0	27	4	AAW19463	Sequence
31	124	84.9	27	5	ABW96797	Omega-con
32	120	82.2	27	2	AAR32779	GVIA omeg
33	120	82.2	27	2	AAW12969	Omega con
34	120	82.2	27	3	AAV56475	Natural o
35	120	82.2	27	3	AAV43716	Amino aci
36	118	80.8	27	2	AAW51035	N-type ca
37	117	80.1	27	2	AAW39610	GVIA/SNX1
38	117	80.1	27	2	AAW37754	GVIA/SNX-
39	117	80.1	27	2	AAW76091	Omega con
40	117	80.1	27	2	AAW19546	Natural o
41	117	80.1	27	2	AAW72607	Conus gen
42	117	80.1	27	2	AAW95566	Omega-con
43	117	80.1	27	2	AAV42337	Omega-con
44	117	80.1	27	3	AAW14354	Omega-con
45	117	80.1	27	4	AAW98074	Conotoxin

ALIGNMENTS

RESULT 1  
AAR32783  
ID AAR32783 standard; peptide; 27 AA.

XX AAR32783;  
XX 28-JUN-1993 (first entry)  
XX TVIA omega conotoxin peptide.  
XX OCT; neuronal damage reduction; ischemia; secondary damage; stroke.  
XX Synthetic.  
XX US5189020-A.  
XX 23-FEB-1993.  
XX 02-AUG-1990; 90US-00561766.  
XX 22-NOV-1989; 89US-00440094.  
XX (NEUR-) NEUREX CORP.  
XX Miljanich GP, Bitner RS, Bowersox SS, Fox JA, Valentino KL;  
XX Yamashiro DH, Taubokawa M;  
XX WPI; 1993-085564/10.  
XX Reducing neuronal damage due to ischaemia - involves using omega  
XX conotoxin peptide or fragment.  
XX Disclosure; Fig 1; 32pp; English.

The sequence is that of the TVIA omega conotoxin (OCT) peptide which can bind to an OCT binding protein, inhibit voltage-gated calcium currents selectively in neuronal tissue and inhibit neuronal transmitter release selectively in neuronal tissue. These properties all occur within the range of those of MWIB, GVIA, RVIA, or pref. MWIA and GVIA OCTs. The peptide can be used in reducing or preventing both anatomical and functional secondary damage related to ischemia, generally as associated with stroke

Sequence 27 AA;

Query Match 95.9%; Score 140; DB 2; Length 27;  
Best Local Similarity 100.0%; Pred. No. 1e-09;  
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRSNXYSRKCR 27  
 DB 1 CLSXGSSCSXTSYNCCRSNXYSRKCR 27

## RESULT 2

AAW12973  
 ID AAW12973 standard; peptide; 27 AA.

AC AAW12973;  
 XX 25-MAR-2003 (revised)  
 DT 22-APR-1997 (first entry)  
 XX Omega conopeptide SNX-185.  
 XX Omega conopeptide; analgesic; treatment; neuropathic pain; inhibition;  
 KW neuronal damage; schizophrenia; tardive dyskinesia; analgesia;  
 KW acute dystonic reactions; inflammation; epilepsy.  
 XX Synthetic.

XX Key Location/Qualifiers  
 FH Modified-site 4  
 FT /label= Hyp  
 FT Modified-site 10  
 FT /label= Hyp  
 FT Modified-site 21  
 FT /label= Hyp

US5587454-A.

24-DEC-1996.

15-APR-1993; 93US-00049794.  
 30-DEC-1991; 91US-00814759.  
 30-DEC-1992; 92WO-US011349.

(NEUR-) NEUREX CORP.

Gohil KC, Miljanich GP, Valentino KL, Justice A, Singh T;  
 WPI; 1997-064830/06.

Omega conopeptide(s) - useful as analgesics, esp. for treating  
 neuropathic pain.

Disclosure; Col 45-46; 58pp; English.

The present peptide is an omega conopeptide, useful as an analgesic,  
 especially for treating neuropathic pain. The peptide, which can be  
 prepared by solid phase synthesis, can also be used to inhibit neuronal  
 damage and treat schizophrenia, tardive dyskinesia, acute dystonic  
 reactions, inflammation and epilepsy. In a rat paw formalin test, the  
 peptide had an ED50 of 0.043 microg in phase 1, and 0.041 microg in phase  
 2 (by intrathecal administration). (Updated on 25-MAR-2003 to correct pf  
 field.)

Sequence 27 AA;

Query Match 95.9%; Score 140; DB 2; Length 27;  
 Best Local Similarity 100.0%; Pred. No. 1e-09;  
 Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRSNXYSRKCR 27  
 DB 1 CLSXGSSCSXTSYNCCRSNXYSRKCR 27

## RESULT 3

AAW12973

ID AAY56479 standard; peptide; 27 AA.  
 XX AAY56479;  
 AC 16-FEB-2000 (first entry)  
 DT Natural omega conopeptide TVIA/SNX-185.

XX Omega conopeptide; analgesic; nociceptive; neuropathic; pain; conotoxin;  
 KW marine snail; peptide toxin; inflammation; binding;  
 KW voltage-gated calcium channel; inhibition; norepinephrine; noradrenaline;  
 KW anti-inflammatory.

OS Conus sp.

XX Key Location/Qualifiers  
 FH Misc-difference 4  
 FT /note= "unspecified"  
 FT Misc-difference 10  
 FT /note= "unspecified"  
 FT Misc-difference 21  
 FT /note= "unspecified"

US5994305-A.

30-NOV-1999.

21-AUG-1998; 98US-00138439.

30-DEC-1991; 91US-00814759.  
 15-APR-1993; 93US-00049794.  
 03-JUL-1996; 96US-00675354.  
 01-NOV-1996; 96US-00742774.

(ELAN-) ELAN PHARM INC.

Justice A, Singh T, Valentino KL, Miljanich GP, Gohil KC;  
 WPI; 2000-038270/03.

Measuring the activity of test compounds in blocking voltage-gated  
 calcium channels, binding to the omega conopeptide binding site and  
 inhibiting norepinephrine (noradrenaline) release for treating  
 inflammation.

Disclosure; Fig 1; 47pp; English.

A method has been developed of selecting a test compound for treating  
 inflammation. The method comprises measuring the activity of the test  
 compound in blocking voltage-gated calcium channels, binding to the omega  
 conopeptide binding site and inhibiting norepinephrine (noradrenaline)  
 release from nervous tissue. The method is useful for selecting compounds  
 for treating inflammation. The selected compounds are capable of  
 producing analgesia in a mammalian subject with chronic or intractable  
 pain. Analgesia caused by selected compounds may reduce the reliance on  
 opioid analgesic agents of the prior art which cause dependency and  
 tolerance, requiring potentially dangerous increases in opioid doses to  
 achieve the analgesic effect. The present sequence represents an omega  
 conopeptide given in the present invention

Sequence 27 AA;

Query Match 95.9%; Score 140; DB 3; Length 27;  
 Best Local Similarity 100.0%; Pred. No. 1e-09;  
 Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRSNXYSRKCR 27  
 DB 1 CLSXGSSCSXTSYNCCRSNXYSRKCR 27

## RESULT 4

AAW12973

ID AAR39614 standard; peptide; 27 AA.

AC AAR39614;

DT 25-MAR-2003 (revised)

DT 20-DEC-1993 (first entry)

XX TVIA/SNX185.

XX Omega conopeptide; OCT; analgesia; inhibition; voltage-gated;  
KW calcium channel; neurone; contraction; guinea pig; ileum; MVIIA;  
KW binding site; toxin; marine; snail; Conus; opiod; chronic pain;  
KW narcotics.

XX Synthetic.

Key	Location/Qualifiers
Disulfide-bond 1..16	
Modified-site 4	/note= "4Hyp"
Disulfide-bond 8..19	
Modified-site 10	/note= "4Hyp"
Disulfide-bond 15..26	
Modified-site 21	/note= "4Hyp"

XX WO9313128-A1.

XX 08-JUL-1993.

XX 30-DEC-1992; 92WO-US011349.

XX 30-DEC-1991; 91US-00814759.

XX (NEUR-) NEUREX CORP.

XX Justice A, Singh T, Gohil K, Valentino KL, Miljanich GP;

XX WPI; 1993-227270/28.

XX Use of omega-cono-peptide(s) which selectively inhibit voltage-gated  
PT calcium channels - to induce analgesia, enhance opiate analgesics, treat  
PT pain etc.

XX Claim 1; Fig 1; 90pp; English.

XX The sequences given in AAR39608-30 are omega conopeptides (OCTs) and  
CC derivatives of these, which may be used to produce analgesia in a mammal.  
CC These OCTs inhibit voltage-gated calcium channels selectively in neuronal  
CC tissue. This is shown by the peptides ability to stimulate contraction in  
CC guinea pig ileum and to bind to OCT MVIIA binding sites present in  
CC neuronal tissue. OCTs are components of peptide toxins derived from  
CC marine snails of the genus Conus, and act as calcium channel blockers.  
CC These OCTs may be used to replace opiods in the treatment of chronic pain  
CC or to reduce the opiod dosage required. This helps to reduce dependence  
CC on and tolerance to opiod narcotics. (Updated on 25-MAR-2003 to correct  
CC PN field.)

XX Sequence 27 AA;

Query Match	Score 137;	DB 2;	Length 27;
Best Local Similarity	93.8%;		
Matches	24; Conservative	0; Mismatches	3; Indels
		0; Gaps	0;

OY 1 CLSXGSSCSXTSYNCCSCNXYSRKCR 27

Db 1 CLSPGSSCSPTSYNCCSCNPNYSRKCR 27

RESULT 5

AAR37759

ID AAR37759 standard; peptide; 27 AA.

XX

AC AAR37759;

DT 25-MAR-2003 (revised)

DT 08-SEP-1993 (first entry)

XX TVIA/SNX-185.

XX Ischaemia; neuronal; omega-conotoxin; OCT; MVIIA; MVIIC; MVIID; MVIIB;  
KW GVIA; GVIIA; GVIA; SVIA; SNK-207; stroke; delayed treatment;  
KW antihistamine; blood pressure; N-type voltage-gated Ca currents;  
KW N-channel mediated neurotransmitter release.

XX Synthetic.

Key	Location/Qualifiers
Disulfide-bond 1..16	
Modified-site 4	/note= "hydroxyproline"
Disulfide-bond 8..19	
Modified-site 10	/note= "hydroxyproline"
Disulfide-bond 15..26	
Modified-site 21	/note= "hydroxyproline"

XX WO9310145-A1.

XX 27-MAY-1993.

XX 12-NOV-1992; 92WO-US009766.

XX 12-NOV-1991; 91US-00789913.

XX 17-JUL-1992; 92US-00916478.

XX (NEUR-) NEUREX CORP.

XX Miljanich GP, Bowersox SS, Fox JA, Valentino KL, Bitner RS;

XX Yamashiro DH;

XX WPI; 1993-182487/22.

XX Redn. of neuronal damage caused by ischaemia - by admin. of cpds. that  
PT bind specifically to omega-conotoxin MVIIA binding sites.

XX Disclosure; Fig 1; 103pp; English.

XX Ischaemia-related neuronal damage in mammals is reduced by admin., 4-24  
CC hr after onset of ischaemia, of a cpd. (I) which binds selectively to an  
CC omega-conotoxin (OCT) MVIIA site in neuronal tissue. (I) has selectivity  
CC at least 100 expressed as ratio of binding affinity for the MVIIA site to  
CC that for the MVIIC site. (I) is one of the OCTs MVIIA, MVIIB, GVIA, GVIIA  
CC or RVIA or it is the cpd. SNX-207. (I) is esp. used to reduce neuronal  
CC damage caused by stroke. By delaying admin. for some time (compare  
CC US051403 where cpds. are given within 1 hr of the onset of ischaemia) a  
CC greater redn. in neuronal damage is achieved. (I) is admin. e.g. by  
CC intracerebroventricular (ICV) injection at 0.1-20 microg/kg, but can also  
CC be given i.v. (opt. after treatment with antihistamines to minimise redn.  
CC in blood pressure caused by (I)). (I) is also at least as effective as  
CC the specified conotoxins for (1) selective inhibition of N-type voltage-  
CC gated Ca currents in neuronal tissue and (2) selective inhibition of N-  
CC channel mediated neurotransmitter release in neuronal tissue. Primary  
CC sequences of omega-conopeptides are given in AAR37752-62. Several analog  
CC omega-conopeptides are given in AAR37763-76. (Updated on 25-MAR-2003 to  
CC correct PN field.)

XX Sequence 27 AA;

Query Match	Score 137;	DB 2;	Length 27;
Best Local Similarity	93.8%;		
Matches	24; Conservative	0; Mismatches	3; Indels
		0; Gaps	0;

OY 1 CLSXGSSCSXTSYNCCSCNXYSRKCR 27

Db 1 CLSPGSSCSPTSYNCRSCNPFYRKCR 27

## RESULT 6

AAAR76095  
ID AAR76095 standard; peptide; 27 AA.

XX AAR76095;

XX 27-AUG-2003 (revised)

DT 25-MAR-2003 (revised)

DT 02-FEB-1996 (first entry)

XX Omega conotoxin TVIA peptide.

XX Omega conotoxin; marine snail; Conus; voltage-gated Ca channel blocker;  
KW synaptosome; membrane; fish electric organ; mammalian brain; ischaemia;  
KW binding protein; binding affinity; stroke.

XX Conus.

XX Key Location/Qualifiers

FT Disulfide-bond 1. .16

FT Modified-site 4

FT /label= 4-Hyp

FT Disulfide-bond 8. .19

FT Modified-site 10

FT /label= 4-Hyp

FT Disulfide-bond 15. .26

FT Modified-site 21

FT /label= 4-Hyp

FT Modified-site 27

FT /note= "amidated C-terminus"

XX US5424218-A.

XX 13-JUN-1995.

XX 04-NOV-1993; 93US-00147714.

XX 22-NOV-1989; 89US-00440094.

XX 02-AUG-1990; 90US-00561766.

XX 23-MAR-1992; 92US-00855269.

XX (NEUR-) NEUREX CORP.

XX Valentino KL, Bowersox SS, Bitner RS, Miljanich GP, Yamashiro DH;

XX Fox JA;

XX WPI; 1995-223694/29.

XX Identifying cpds. able to reduce neuronal damage caused by ischaemia - by

XX measuring their affinity to omega conotoxin MVIIA binding site and

XX ability e.g. to inhibit voltage gated calcium channels.

XX Disclosure; Fig 1; 31pp; English.

XX The peptides AAR76089-95 are naturally occurring omega conotoxin (OCT)

XX peptides derived from marine snails of the Conus genus. The peptide

XX sequences were used to chemically synthesise the OCT peptide fragments

XX AAR76096-R76109. The OCT peptides act as voltage-gated Ca channel

XX blockers by binding to a 210 kD protein from synaptosomal membrane

XX preparations from fish electric organ or mammalian brains. The peptides

XX and their synthesised fragments can be used to screen for compounds that

XX bind to the OCT binding protein, by displacing a high affinity labelled

XX OCT, such as MVIIA, from a synaptosomal membrane preparation. The

XX compounds should have binding affinities and activities at least equal to

XX those of the natural peptides (K<sub>i</sub> 0.44-324 nM). The screened compounds

XX are potentially useful in treating ischaemic conditions, esp. stroke, and

XX can reduce sec. anatomical and functional damage associated with those

XX conditions. (Updated on 25-MAR-2003 to correct PF field.) (Updated on 27-

XX AUG-2003 to correct OS field.)

XX SQ Sequence 27 AA;

Query Match 93.8%; Score 137; DB 2; Length 27;

Best Local Similarity 88.9%; Pred. No. 2.3e-09;

Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

OY 1 CLSXGSSCSXTSYNCRSCNXYRKCR 27

DB 1 CLSPGSSCSPTSYNCRSCNPFYRKCR 27

RESULT 7

AAW19550

ID AAW19550 standard; peptide; 27 AA.

XX AAW19550;

XX 27-AUG-2003 (revised)

DT 13-OCT-1997 (first entry)

XX Natural omega-conopeptide TVIA/SNX-185 used for pain relief.

XX Conopeptide; cone snail; pain; analgesic; neuropathy; epidural;

XX N-type voltage-sensitive calcium channel; block; Conus.

XX Conus.

XX Key Location/Qualifiers

FT Misc-difference 4

FT /label= 4Hyp

FT Misc-difference 10

FT /label= 4Hyp

FT Misc-difference 21

FT /label= 4Hyp

FT Modified-site 27

FT /note= "optionally amidated"

XX WO9701351-A1.

XX 16-JAN-1997.

XX 26-JUN-1996; 96WO-US011041.

XX 27-JUN-1995; 95US-00496847.

XX 08-MAR-1996; 96US-00613400.

XX (NEUR-) NEUREX CORP.

XX Amstutz GA, Bowersox SS, Gohil K, Adriaenssens PI, Kristipati R;

XX Gadbois T, Pettus MR, Luther RR;

XX WPI; 1997-100012/09.

XX Stable omega conopeptide compositions - for producing analgesia and for

XX inhibiting progression of neuropathic pain disorders.

XX Claim 3; Fig 2; 47pp; English.

XX AAW19544-W19553 are naturally occurring omega conopeptides (OCs) isolated

XX from Conus sp. (cone snails). The peptides and their analogues are used

XX as analgesics acting by blocking N-type voltage-sensitive calcium

XX channels. The OCs can be used to treat neuropathic pain as a result of

XX e.g. insult to the spinal cord or peripheral nerves, cancer, bone

XX degenerative diseases, AIDS, reflex sympathetic dystrophy, herpes zoster

XX neuropathy, diabetic neuropathy, hyperesthesia, allodynia or

XX hyperalgesia. The OCs are preferably administered in a medicament via an

XX epidural route in a continuous infusion or sustained release formulation.

XX The OCs can provide pain relief when administered epidurally in the

XX absence of a permeation enhancer, at doses that are comparable to

XX effective analgesic doses using intrathecal administration. OC

XX formulations comprising an OC and a carboxylic acid buffer anti-oxidant.

XX They also confer stability to solutions containing them for prolonged



CC treatment methods and long-term storage. (Updated on 27-AUG-2003 to  
 CC correct OS field.)

XX Sequence 27 AA;

SQ Query Match 93.8%; Score 137; DB 2; Length 27;  
 Best Local Similarity 88.9%; Pred. No. 2.3e-09;  
 Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRCNXYSRKCR 27  
 ||||| ||||| ||||| ||||| |||||  
 Db 1 CLSPGSSCSPTSYNCCRCNYPYSRKCR 27

# RESULT 8

AAW72611  
 ID AAW72611 standard; peptide; 27 AA.

AC AAW72611;

XX 27-AUG-2003 (revised)

DT 06-JAN-1999 (first entry)

DE Conus genus natural omega-conopeptide TVIA/SNX-185.

XX Conus genus; marine snail; cone snail; omega-conopeptide; analgesia;  
 KW nociceptive pain; neuropathic pain; neuronal tissue; conotoxin;  
 KW inflammation; schizophrenia; tardive dyskinesia; acute dystonic reaction;  
 KW rheumatoid arthritis; epilepsy.

OS Conus.

XX Key Location/Qualifiers

FT Modified-site 4  
 /label= Hyp  
 /note= "hydroxyproline"  
 FT Modified-site 10  
 /label= Hyp  
 /note= "hydroxyproline"  
 FT Modified-site 21  
 /label= Hyp  
 /note= "hydroxyproline"

US5824645-A.

XX 20-OCT-1998.

XX 01-NOV-1996; 96US-00742774.

XX 30-DEC-1991; 91US-00814759.

PR 15-APR-1993; 93US-00049794.

PR 03-JUL-1996; 96US-00675354.

XX (NEUR-) NEUREX CORP.

PA Miljanich GP, Valentino KL, Gohil KC, Justice A, Singh T;

PI WPI; 1998-582596/49.

DR Treatment of inflammation, comprises administration of omega-conopeptide

XX - effective to block voltage-gated calcium channels, bind with high

PT affinity to omega-conopeptide binding site, and inhibit neuro-transmitter

PT release.

XX Disclosure; Fig 1; 58pp; English.

PS A method has been developed for the treatment of inflammation in a

XX subject. The method comprises administration of an omega-conopeptide

CC effective to: (i) block voltage-gated calcium channels; (ii) bind with

CC high affinity to an omega-conopeptide binding site; and (iii) inhibit

CC neurotransmitter release from nervous tissue. The method is used to treat

CC inflammation and associated pain. The treatment can also be used to

CC produce analgesia (especially in subjects experiencing neuropathic pain);

CC

CC and to treat schizophrenia, tardive dyskinesia and acute dystonic  
 CC reactions, rheumatoid arthritis, and epilepsy. The present sequence  
 CC represents a natural omega-conopeptide. Omega-conopeptides are components  
 CC of peptide toxins produced by marine snails of the genus Conus, and which  
 CC act as calcium channel blockers. (Updated on 27-AUG-2003 to correct OS  
 CC field.)

SQ Sequence 27 AA;

Query Match 93.8%; Score 137; DB 2; Length 27;  
 Best Local Similarity 88.9%; Pred. No. 2.3e-09;  
 Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRCNXYSRKCR 27  
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Db 1 CLSPGSSCSPTSYNCCRCNYPYSRKCR 27

# RESULT 9

AAW95570

ID AAW95570 standard; protein; 27 AA.

XX AAW95570;

XX 29-MAR-1999 (first entry)

DT Omega-conopeptide TVIA/SNX-185.

XX Omega-conopeptide; peptide toxin; snail; calcium channel blocker;

XX analgesia; guinea pig ileum; omega-conotoxin; pain; neuropathic.

OS Synthetic.

OS Conus sp.

XX Key Location/Qualifiers

FT Modified-site 4  
 /label= 4Hyp  
 /note= "4-Hydroxyproline"  
 FT Modified-site 10  
 /label= 4Hyp  
 /note= "4-Hydroxyproline"  
 FT Modified-site 21  
 /label= 4Hyp  
 /note= "4-Hydroxyproline"  
 FT Modified-site 27  
 /note= "C-terminal amide"

US5859186-A.

XX 12-JAN-1999.

XX 03-JUL-1996; 96US-00675354.

PR 30-DEC-1991; 91US-00814759.

PR 15-APR-1993; 93US-00049794.

XX (NEUR-) NEUREX CORP.

PA Miljanich GP, Gohil KC, Valentino KL, Justice A, Singh T;

PI WPI; 1999-120002/10.

DR Production of analgesia in mammal - by administration of omega cono-

PT peptide(s).

XX Disclosure; Fig 1B; 59pp; English.

PS Sequences AAW95564-573 represent primary sequences of natural omega-

CC conopeptides. Omega-conopeptides are components of peptide toxins

CC produced by marine snails of the genus Conus, and which act as calcium

CC channel blockers. The invention relates to a method of producing

CC analgesia in a mammal that comprises administering an omega conopeptide

CC having activities in (a) inhibiting electrically stimulated contraction

CC

CC of guinea pig ileum and (b) selectively binding to omega conopeptide  
 CC MWIIA binding sites in neuronal tissue, where these activities are within  
 CC the ranges of those of omega-conotoxins MWIIA and TVIA. The method is  
 CC used for treating chronic pain, especially neuropathic pain

XX Sequence 27 AA;

Query Match 93.8%; Score 137; DB 2; Length 27;  
 Best Local Similarity 88.9%; Pred. No. 2.3e-09;  
 Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCRSCNXYSRKCR 27  
 |||||  
 DB 1 CLSPGSSCSPTSYNCRSCNPFYSRKCR 27  
 |||||

RESULT 10  
 AAY42340  
 ID AAY42340 standard; peptide; 27 AA.

XX AAY42340;

DT 20-DEC-1999 (first entry)

DE Omega-conotoxin OCT TVIA.

KW Calcium channel; neuron; retina; optic nerve; trauma; ischaemia; vision;  
 prevention.

OS Conus sp.

PH Key Location/Qualifiers

FT Disulfide-bond 1..16

FT Modified-site 4

FT Disulfide-bond 8..19 /label= 4Hyp

FT Modified-site 10

FT Disulfide-bond 15..26 /label= 4Hyp

FT Modified-site 21

FT Misc-difference 25 /label= 4Hyp

FT /note= "Optionally contains C-terminal amide"

FT US5965534-A.

PN 12-OCT-1999.

XX 13-MAR-1998; 98US-00039168.

XX 22-NOV-1995; 95US-00562142.

XX (ALCO-) ALCON LAB INC.

XX Hellberg M, Pang I, Kapin M;

XX WPI; 1999-579926/49.

XX Treatment or prevention of retinal or optic nerve head damage comprises

XX administration of an omega-conotoxin derivative.

XX Claim 2; Col 11-12; 7pp; English.

XX This sequence represents omega-conotoxin OCT TVIA. Omega-conotoxins

XX selectively block N-type calcium channels responsible for calcium influx

XX in neurons. Acute retinal or optic nerve damage, which can result in the

XX loss of vision, is caused by acute trauma and pathological events such as

XX ischaemia, hypoxia or oedema. The release of excitatory amino acids is

XX implicated in ischaemia-related neuronal and retinal damage, with

XX excitatory amino acid release leading to excessive stimulation of post-

XX synaptic excitatory amino acid receptors, which can result in cell

XX injury. The release of such excitatory amino acids from presynaptic nerve

XX terminals is dependent upon an elevation of calcium in the nerve

CC terminal. This presynaptic calcium influx is mediated by the N-type  
 CC calcium channels that are inhibited by omega-conotoxins. Intracellular  
 CC administration of at least one omega-conotoxin could be used for the  
 CC treatment or prevention of retinal or optic nerve head damage resulting  
 CC from acute traumatic or acute ischaemic events

XX Sequence 27 AA;

Query Match 93.8%; Score 137; DB 2; Length 27;  
 Best Local Similarity 88.9%; Pred. No. 2.3e-09;  
 Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCRSCNXYSRKCR 27  
 |||||  
 DB 1 CLSPGSSCSPTSYNCRSCNPFYSRKCR 27  
 |||||

RESULT 11

AAB14358

ID AAB14358 standard; peptide; 27 AA.

XX AAB14358;

DT 06-DEC-2000 (first entry)

DE Omega-conopeptide TVIA/SNX-185.

KW Marine snail; omega-conopeptide; calcium channel blocker; TVIA; SNX-185;

KW toxin; analgesic; antiinflammatory; anticonvulsant; neuroleptic;

KW norepinephrine release inhibitor; schizophrenia; tardive dyskinesia;

KW acute dystonic reaction; inflammation; epilepsy.

OS Conus sp.

PH Key Location/Qualifiers

FT Disulfide-bond 1..16

FT Modified-site 4 /label= 4Hyp

FT Disulfide-bond 8..19

FT Modified-site 10 /label= 4Hyp

FT Disulfide-bond 15..26

FT Modified-site 21 /label= 4Hyp

FT Modified-site 27 /note= "C-terminal amide"

FT US6087091-A.

PN 11-JUL-2000.

XX 23-APR-1999; 99US-00298017.

XX 30-DEC-1991; 91US-00814759.

XX 15-APR-1993; 93US-00049794.

XX 03-JUL-1996; 96US-00675354.

XX 01-NOV-1996; 96US-00742774.

XX 21-AUG-1998; 98US-00138439.

XX (ELAN-) ELAN PHARM INC.

XX Singh T, Gohil KC, Valentino KL, Miljanich GP, Justice A;

XX WPI; 2000-490177/43.

XX Selecting a compound for producing analgesia involves measuring activity

XX of test compound in blocking voltage-gated calcium channels, binding to

XX omega conopeptide binding site and inhibiting norepinephrine release.

XX Disclosure; Fig 1; 58pp; English.

PS The present sequence is an omega-conopeptide from marine snails of the

XX genus Conus. Omega-conopeptides are components of peptide toxins produced

CC

CC by the cone snails, and which act as calcium channel blockers. Natural  
 CC omega-conopeptides and their derivatives may be useful for producing  
 CC analgesia in nociceptive and neuropathic pain. The peptides bind to omega  
 CC -conopeptide binding sites, which are present mainly in neuronal tissue,  
 CC and inhibit norepinephrine release from nervous tissue. Conopeptides such  
 CC as MWIA and TVIA are effective as therapeutic agents for treating  
 CC neurogenic conditions such as schizophrenia, tardive dyskinesia and acute  
 CC dystonic reactions, inflammation and epilepsy

SQ Sequence 27 AA;

Query Match 93.8%; Score 137; DB 3; Length 27;  
 Best Local Similarity 88.9%; Pred. No. 2.3e-09;  
 Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CLSXGSCSXTSYNCRSCNXYSRKCR 27

Db 1 CLSPGSCSPTSYNCRSCNYPYRKCR 27

RESULT 12

AA19448

ID AAB19448 standard; peptide; 27 AA.

AC AAB19448;

DT 06-MAR-2001 (first entry)

DE Primary sequence of a natural omega-conopeptide TVIA/SNX-185.

XX Omega-conopeptide; voltage-gated calcium channel inhibitor; analgesic;  
 KW peptide toxin; opiate; pain; neuronal damage; ischemic condition;  
 KW schizophrenia; tardive dyskinesia; acute dystonic reaction; inflammation;  
 KW epilepsy.

OS Conus sp.

XX Key Location/Qualifiers

FT Disulfide-bond 1..16

FT Modified-site 4

FT /label= Hyp

FT /note= "hydroxyproline"

FT Disulfide-bond 8..19

FT Modified-site 10

FT /label= Hyp

FT /note= "hydroxyproline"

FT Disulfide-bond 15..26

FT Modified-site 21

FT /label= Hyp

FT /note= "hydroxyproline"

FT Modified-site 27

FT /note= "amidated C-terminal"

FT US6136786-A.

FN 24-OCT-2000.

XX 09-SEP-1999; 99US-00392979.

XX 30-DEC-1991; 91US-00814759.

PR 15-APR-1993; 93US-00049794.

PR 23-JUN-1993; 93US-00081863.

PR 03-JUL-1996; 96US-00675354.

PR 01-NOV-1996; 96US-00742774.

PR 21-AUG-1998; 98US-00138439.

PR 23-APR-1999; 99US-00298017.

XX (ELAN-) ELAN PHARM INC.

PA Singh T, Gohil KC, Valentino KL, Miljanich GP, Justice A;

PI WPI; 2001-030946/04.

DR WPI; 2002-257318/30.

XX N-PSDB; ABL98947.

XX New omega-conopeptides useful for treating disorders associated with

PT voltage gated ion channels e.g. pain, inflammation, neurologic or

PT Enhancing analgesia produced by opiates by administering an omega-  
 PT conopeptide that inhibits electrically stimulated contraction of guinea  
 PT pig ileum and binds to omega-conopeptide MWIA binding sites in neuronal  
 PT tissues.

PS Disclosure; Fig 1; 58pp; English.

XX The present sequence represents an omega-conopeptide. Omega-conopeptides  
 CC are components of peptide toxins which act as voltage-gated calcium  
 CC channel inhibitors. The peptides are used to enhance the analgesic effect  
 CC produced by an opiate in a mammalian subject. The method comprises  
 CC administering to the subject an omega-conopeptide which is able to  
 CC inhibit electrically stimulated contraction of the guinea pig ileum and  
 CC bind to omega-conopeptide MWIA binding sites present in neuronal tissue.  
 CC Omega-conopeptides are useful for enhancing the analgesic effect produced  
 CC by an opiate. Omega-conopeptides may also be used in the treatment of  
 CC pain, in reducing neuronal damage related to an ischemic condition in  
 CC mammals, and in treating schizophrenia, tardive dyskinesia and acute  
 CC dystonic reactions, inflammation and epilepsy

XX SQ Sequence 27 AA;

Query Match 93.8%; Score 137; DB 4; Length 27;

Best Local Similarity 88.9%; Pred. No. 2.3e-09;

Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CLSXGSCSXTSYNCRSCNXYSRKCR 27

Db 1 CLSPGSCSPTSYNCRSCNYPYRKCR 27

RESULT 13

AB96688

ID ABB96688 standard; peptide; 73 AA.

XX AC ABB96688;

XX DT 12-JUL-2002 (first entry)

XX DE Omega-conopeptide w-TVIA propeptide.

XX Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;  
 KW neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;  
 KW antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;  
 KW anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;  
 KW neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;  
 KW stroke; cerebrovascular accident; brain trauma; spinal cord trauma;  
 KW drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;  
 KW migraine; inflammation; cardiovascular disorder; psychiatric disorder;  
 KW psychosis; anxiety; schizophrenia.

OS Conus tulipa.

XX WO200207675-A2.

XX 31-JAN-2002.

XX 23-JUL-2001; 2001WO-US023041.

XX 21-JUL-2000; 2000US-0219616P.

PR 05-FEB-2001; 2001US-0265888P.

XX (UTAH ) UNIV UTAH RES FOUND.

PA (COGN-) COGNETIX INC.

XX Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;

PI Jacobsen R, Jones RM, Cartier GE;

XX WPI; 2002-257318/30.

DR N-PSDB; ABL98947.

XX New omega-conopeptides useful for treating disorders associated with

PT voltage gated ion channels e.g. pain, inflammation, neurologic or



XX  
PS  
XX  
CC  
CC  
CC  
CC  
CC  
CC  
CC  
CC  
CC  
CC  
CC  
CC  
CC  
CC  
CC  
CC  
CC  
XX  
SQ

Disclosure; Fig 2; 47pp; English.

A method has been developed of selecting a test compound for treating inflammation. The method comprises measuring the activity of the test compound in blocking voltage-gated calcium channels, binding to the omega conopeptide binding site and inhibiting norepinephrine (noradrenaline) release from nervous tissue. The method is useful for selecting compounds for treating inflammation. The selected compounds are capable of producing analgesia in a mammalian subject with chronic or intractable pain. Analgesia caused by selected compounds may reduce the reliance on opioid analgesic agents of the prior art which cause dependency and tolerance, requiring potentially dangerous increases in opioid doses to achieve the analgesic effect. The present sequence represents an omega conopeptide given in the present invention

Sequence 27 AA;

Query Match 88.4%; Score 129; DB 3; Length 27;

Best Local Similarity 88.9%; Pred. No. 2e-08; 3; Indels 0; Gaps 0;

Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

Qy 1 CLSXGSGCSXTSYNCRSCNXYRKCR 27

Db 1 CLSXGSGCSRLMYNCRSCNXYRKCR 27

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GenCore version 5.1.6  
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: March 22, 2005, 22:51:32 ; Search time 21.8317 Seconds  
(without alignments)  
92.321 Million cell updates/sec

Title: US-09-787-082A-17  
Perfect score: 146  
Sequence: 1 CLSXSXSYNSYNSCRSCNYSRKR 27

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
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Listing first 45 summaries

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
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2	140	95.9	27	1 US-08-049-794-7	Sequence 7, Appli
3	140	95.9	27	1 US-08-496-847-7	Sequence 7, Appli
4	140	95.9	27	2 US-08-742-774-7	Sequence 7, Appli
5	140	95.9	27	2 US-08-675-354-7	Sequence 7, Appli
6	140	95.9	27	2 US-08-965-918-7	Sequence 7, Appli
7	140	95.9	27	2 US-09-039-168-7	Sequence 7, Appli
8	140	95.9	27	2 US-09-138-439-7	Sequence 7, Appli
9	140	95.9	27	3 US-08-613-400A-7	Sequence 7, Appli
10	140	95.9	27	3 US-09-298-017-7	Sequence 7, Appli
11	140	95.9	27	6 5189020-7	Patent No. 5189020
12	140	95.9	27	6 5189020-7	Patent No. 5189020
13	140	95.9	27	6 5424218-7	Patent No. 5424218
14	140	95.9	27	6 5189020-7	Patent No. 5189020
15	140	95.9	27	6 5424218-7	Patent No. 5424218
16	129	88.4	27	1 US-07-789-913-20	Sequence 20, Appl
17	129	88.4	27	1 US-08-049-794-20	Sequence 20, Appl
18	129	88.4	27	1 US-08-496-847-20	Sequence 20, Appl
19	129	88.4	27	2 US-08-742-774-20	Sequence 20, Appl
20	129	88.4	27	2 US-08-675-354-20	Sequence 20, Appl
21	129	88.4	27	2 US-08-965-918-20	Sequence 20, Appl
22	129	88.4	27	2 US-09-138-439-20	Sequence 20, Appl
23	129	88.4	27	3 US-08-613-400A-20	Sequence 20, Appl
24	129	88.4	27	3 US-09-298-017-20	Sequence 20, Appl
25	129	88.4	27	3 US-09-392-979A-20	Sequence 20, Appl
26	128	87.7	27	1 US-08-049-794-30	Sequence 30, Appl
27	128	87.7	27	1 US-08-496-847-30	Sequence 30, Appl

28	128	87.7	27	2 US-08-742-774-30	Sequence 30, Appl
29	128	87.7	27	2 US-08-675-354-30	Sequence 30, Appl
30	128	87.7	27	2 US-08-965-918-30	Sequence 30, Appl
31	128	87.7	27	2 US-09-138-439-30	Sequence 30, Appl
32	128	87.7	27	3 US-08-613-400A-30	Sequence 30, Appl
33	128	87.7	27	3 US-09-298-017-30	Sequence 30, Appl
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38	120	82.2	27	1 US-08-496-847-3	Sequence 3, Appli
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ALIGNMENTS

RESULT 1  
US-07-789-913-7  
; Sequence 7, Application US/07789913  
; Patent No. 5559095  
; GENERAL INFORMATION:  
; APPLICANT: Miljanich, George P.  
; APPLICANT: Bowersox, Stephen S.  
; APPLICANT: Fox, James A.  
; APPLICANT: Valentino, Karen L.  
; APPLICANT: Bitner, Robert S.  
; APPLICANT: Yamashiro, Donald H.  
; TITLE OF INVENTION: Delayed Treatment Method of Reducing Ischemia-Related Neuronal Damage  
; NUMBER OF SEQUENCES: 28  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patentin Release #1.0, Version #1.25  
; CURRENT APPLICATION NUMBER: US/07/789,913  
; FILING DATE: 19911112  
; CLASSIFICATION: 514  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/561,766  
; FILING DATE: 02-AUG-1990  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/440,094  
; FILING DATE: 22-NOV-1989  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0005.30  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 7:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 27 amino acids  
; TYPE: AMINO ACID  
; TOPOLOGY: both  
; MOLECULE TYPE: peptide  
; HYPOTHETICAL: NO

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; ANTI-SENSE: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: SNX-185
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; LOCATION: 4..5
; OTHER INFORMATION: /note= "where Xaa is
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; LOCATION: 10..11
; OTHER INFORMATION: /note= "where Xaa is
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; LOCATION: 21..22
; OTHER INFORMATION: /note= "where Xaa is
; OTHER INFORMATION: hydroxyproline"
; US-07-789-913-7

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Query Match          95.9%; Score 140; DB 1; Length 27;
Best Local Similarity 100.0%; Pred. No. 4.2e-10;
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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QY 1 CLSXGSSCSXTSYNCRSCNXYSRKCR 27
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DB 1 CLSXGSSCSXTSYNCRSCNXYSRKCR 27

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RESULT 2
US-08-049-794-7
; Sequence 7, Application US/08049794
; Patent No. 5587454
; GENERAL INFORMATION:
; APPLICANT: JUSTICE, ALAN
; APPLICANT: SINGH, TEJINDER
; APPLICANT: GOHIL, KISHOR C
; APPLICANT: VALENTINO, KAREN L
; APPLICANT: MILJANICH, GEORGE P
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA
; NUMBER OF SEQUENCES: 34
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Law Offices of Peter Dehlinger
; STREET: 350 Cambridge Avenue, Suite 300
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/049,794
; FILING DATE: 19930415
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/814,759
; FILING DATE: 30-DEC-1991
; ATTORNEY/AGENT INFORMATION:
; NAME: Stratford, Carol A.
; REGISTRATION NUMBER: 34,444
; REFERENCE/DOCKET NUMBER: 5865-0009.30
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (415) 324-0880
; TELEFAX: (415) 324-0960
; INFORMATION FOR SEQ ID NO: 7:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 27 amino acids
; TYPE: AMINO ACID
; TOPOLOGY: linear

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; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: TVIA/SNX-185, FIGURE 1
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; NAME/KEY: Modified-site
; LOCATION: 4
; OTHER INFORMATION: /note= "where X is hydroxyproline"
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 10
; OTHER INFORMATION: /note= "where X is hydroxyproline"
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 21
; OTHER INFORMATION: /note= "where X is hydroxyproline"
; US-08-049-794-7

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Query Match          95.9%; Score 140; DB 1; Length 27;
Best Local Similarity 100.0%; Pred. No. 4.2e-10;
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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QY 1 CLSXGSSCSXTSYNCRSCNXYSRKCR 27
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DB 1 CLSXGSSCSXTSYNCRSCNXYSRKCR 27

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RESULT 3
US-08-496-847-7
; Sequence 7, Application US/08496847
; Patent No. 5795864
; GENERAL INFORMATION:
; APPLICANT: Amstutz, Gary A.
; APPLICANT: Bowersox, Stephen S.
; APPLICANT: Gohil, Kishorchandra
; APPLICANT: Adriaenssens, Peter I.
; APPLICANT: Kristipati, Ramasharma
; TITLE OF INVENTION: METHODS AND
; TITLE OF INVENTION: FORMULATIONS FOR PREVENTING PROGRESSION OF NEUROPATHIC PAIN
; NUMBER OF SEQUENCES: 36
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Dehlinger & Associates
; STREET: 350 Cambridge Avenue, Suite 250
; CITY: Palo Alto
; STATE: CA
; COUNTRY: US
; ZIP: 94306-1546
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette
; COMPUTER: IBM Compatible
; OPERATING SYSTEM: DOS
; SOFTWARE: FastSeq for Windows Version 2.0
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/496,847
; FILING DATE: 27-JUN-1995
; CLASSIFICATION: 514
; ATTORNEY/AGENT INFORMATION:
; NAME: Stratford, Carol A.
; REGISTRATION NUMBER: 34,444
; REFERENCE/DOCKET NUMBER: 5865-0009.31
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650-324-0880
; TELEFAX: 650-324-0960
; INFORMATION FOR SEQ ID NO: 7:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 27 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: TVIA/SNX-185, FIGURE 1
; FEATURE:

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NAME/KEY: Modified-site  
LOCATION: 4  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
FEATURE:  
LOCATION: 10  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 21  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-08-496-847-7

Query Match 95.9%; Score 140; DB 1; Length 27;  
Best Local Similarity 100.0%; Pred. No. 4.2e-10;  
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRSNCNYSRKCR 27

Db 1 CLSXGSSCSXTSYNCCRSNCNYSRKCR 27

## RESULT 4

US-08-742-774-7

Sequence 7, Application US/08742774

Patent No. 5824645

GENERAL INFORMATION:

APPLICANT: JUSTICE, ALAN

APPLICANT: SINGH, TEJINDER

APPLICANT: GOHIL, KISHOR C

APPLICANT: VALENTINO, KAREN L

APPLICANT: MILJANICH, GEORGE P

TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND

TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA

NUMBER OF SEQUENCES: 34

CORRESPONDENCE ADDRESS:

ADDRESSEE: Law Offices of Peter Dehlinger

STREET: 350 Cambridge Avenue, Suite 300

CITY: Palo Alto

STATE: CA

COUNTRY: USA

ZIP: 94306

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patent In Release #1.0, Version #1.25

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/742,774

FILING DATE:

CLASSIFICATION:

PRIOR APPLICATION NUMBER: 08/675,354

FILING DATE: 03-JUL-1996

APPLICATION NUMBER: US/08/049,794

FILING DATE: 1993-APR-15

APPLICATION NUMBER: US 07/814,759

FILING DATE: 30-DEC-1991

ATTORNEY/AGENT INFORMATION:

NAME: Stratford, Carol A.

REGISTRATION NUMBER: 34,444

REFERENCE/DOCKET NUMBER: 5865-0009.30

TELECOMMUNICATION INFORMATION:

TELEPHONE: (415) 324-0880

TELEFAX: (415) 324-0960

INFORMATION FOR SEQ ID NO: 7:

SEQUENCE CHARACTERISTICS:

LENGTH: 27 amino acids

TYPE: amino acid

TOPOLOGY: linear

MOLECULE TYPE: protein

HYPOTHETICAL: NO

ORIGINAL SOURCE:

INDIVIDUAL ISOLATE: TVIA/SNX-185, FIGURE 1  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 4  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 10  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 21  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-08-742-774-7

Query Match 95.9%; Score 140; DB 2; Length 27;  
Best Local Similarity 100.0%; Pred. No. 4.2e-10;  
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRSNCNYSRKCR 27

Db 1 CLSXGSSCSXTSYNCCRSNCNYSRKCR 27

## RESULT 5

US-08-675-354-7

Sequence 7, Application US/08675354

Patent No. 5859186

GENERAL INFORMATION:

APPLICANT: JUSTICE, ALAN

APPLICANT: SINGH, TEJINDER

APPLICANT: GOHIL, KISHOR C

APPLICANT: VALENTINO, KAREN L

APPLICANT: MILJANICH, GEORGE P

TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND

TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA

NUMBER OF SEQUENCES: 34

CORRESPONDENCE ADDRESS:

ADDRESSEE: Law Offices of Peter Dehlinger

STREET: 350 Cambridge Avenue, Suite 300

CITY: Palo Alto

STATE: CA

COUNTRY: USA

ZIP: 94306

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patent In Release #1.0, Version #1.25

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/675,354

FILING DATE: 03-JUL-1996

CLASSIFICATION: 530

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US/08/049,794

FILING DATE: 1993-APR-15

APPLICATION NUMBER: US 07/814,759

FILING DATE: 30-DEC-1991

ATTORNEY/AGENT INFORMATION:

NAME: Stratford, Carol A.

REGISTRATION NUMBER: 34,444

REFERENCE/DOCKET NUMBER: 5865-0009.30

TELECOMMUNICATION INFORMATION:

TELEPHONE: (415) 324-0880

TELEFAX: (415) 324-0960

INFORMATION FOR SEQ ID NO: 7:

SEQUENCE CHARACTERISTICS:

LENGTH: 27 amino acids

TYPE: amino acid

TOPOLOGY: linear

MOLECULE TYPE: protein

HYPOTHETICAL: NO

ORIGINAL SOURCE:

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; INDIVIDUAL ISOLATE: TVIA/SNX-185, FIGURE 1
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 4
; OTHER INFORMATION: /note= "where X is hydroxyproline"
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 10
; OTHER INFORMATION: /note= "where X is hydroxyproline"
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 21
; OTHER INFORMATION: /note= "where X is hydroxyproline"
US-08-675-354-7

Query Match 95.9%; Score 140; DB 2; Length 27;
Best Local Similarity 100.0%; Pred. No. 4.2e-10;
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCSCNYSRKCR 27
Db 1 CLSXGSSCSXTSYNCCSCNYSRKCR 27

RESULT 6
US-08-965-918-7
; Sequence 7, Application US/08965918
; Patent No. 5891849
; GENERAL INFORMATION:
; APPLICANT: Amstutz, Gary A.
; APPLICANT: Bowersox, Stephen S.
; APPLICANT: Gohil, Kishorchandra
; APPLICANT: Adriaenssens, Peter I.
; APPLICANT: Kristipati, Ramasharma
; TITLE OF INVENTION: METHODS AND FORMULATIONS FOR PREVENTING
; TITLE OF INVENTION: PROGRESSION OF NEUROPATHIC PAIN
; NUMBER OF SEQUENCES: 36
; CORRESPONDENCE ADDRESS:
; ADDRESSER: Dellinger & Associates
; STREET: 350 Cambridge Avenue, Suite 250
; CITY: Palo Alto
; STATE: CA
; COUNTRY: US
; ZIP: 94306-1546
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette
; COMPUTER: IBM Compatible
; OPERATING SYSTEM: DOS
; SOFTWARE: FastSeq for Windows Version 2.0
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/965,918
; FILING DATE: 07-NOV-1997
; CLASSIFICATION: 514
; ATTORNEY/AGENT INFORMATION:
; NAME: Mohr, Judy M.
; REGISTRATION NUMBER: 38,563
; REFERENCE/DOCKET NUMBER: 5865-0009.34
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650-324-0880
; TELEFAX: 650-324-0960
; INFORMATION FOR SEQ ID NO: 7:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 27 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: TVIA/SNX-185, FIGURE 1
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 4
; OTHER INFORMATION: /note= "where X is hydroxyproline"
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; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 10
; OTHER INFORMATION: /note= "where X is hydroxyproline"
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 21
; OTHER INFORMATION: /note= "where X is hydroxyproline"
US-08-965-918-7

Query Match 95.9%; Score 140; DB 2; Length 27;
Best Local Similarity 100.0%; Pred. No. 4.2e-10;
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCSCNYSRKCR 27
Db 1 CLSXGSSCSXTSYNCCSCNYSRKCR 27

RESULT 7
US-09-039-168-7
; Sequence 7, Application US/09039168
; Patent No. 5965534
; GENERAL INFORMATION:
; APPLICANT: Pang, Iok-Hou; Kapin, Michael and Hellberg,
; APPLICANT: Mark
; TITLE OF INVENTION: The Use of w-Conotoxin Analogs For
; TITLE OF INVENTION: Treating Retinal and Optic Nerve Head Damage
; NUMBER OF SEQUENCES: 7
; CORRESPONDENCE ADDRESS:
; ADDRESSER: Alcon Laboratories, Inc.
; STREET: 6201 South Freeway, Patent Legal
; CITY: Fort Worth
; STATE: Texas
; COUNTRY: USA
; ZIP: 76134-2099
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 1.2 mg, 3.25" floppy disk
; COMPUTER: Compaq Deskpro XE 560
; OPERATING SYSTEM: Microsoft Windows for Workgroups,
; OPERATING SYSTEM: Version 3.11
; SOFTWARE: Microsoft Word 6.0
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/039,168
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 08/562,142
; FILING DATE: No. 5965534ember 22, 1995
; ATTORNEY/AGENT INFORMATION:
; NAME: MAYO, MICHAEL C.
; REGISTRATION NUMBER: 38,545
; REFERENCE/DOCKET NUMBER: 1462
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (817) 551-4321
; TELEFAX: (817) 551-4610
; INFORMATION FOR SEQ ID NO: 7:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 27 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: unknown
; MOLECULE TYPE: peptide
; DESCRIPTION:
; HYPOTHETICAL: NO
; ANTI-SENSE: No
; US-09-039-168-7

Query Match 95.9%; Score 140; DB 2; Length 27;
Best Local Similarity 100.0%; Pred. No. 4.2e-10;
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCSCNYSRKCR 27
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DB 1 CLSXGSSCSXTSYNCCSCNYSRKCR 27

RESULT 8  
US-09-138-439-7  
; Sequence 7, Application US/09138439  
; Patent No. 5994305  
; GENERAL INFORMATION:  
; APPLICANT: JUSTICE, ALAN  
; APPLICANT: SINGH, TEJINDER  
; APPLICANT: GOHIL, KISHOR C  
; APPLICANT: VALENTINO, KAREN L  
; APPLICANT: MILJANICH, GEORGE P  
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
; NUMBER OF SEQUENCES: 34  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/09/138,439  
; FILING DATE:  
; CLASSIFICATION:  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US/08/049,794  
; FILING DATE: 1993-04-15  
; APPLICATION NUMBER: US 07/814,759  
; FILING DATE: 30-DEC-1991  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0009.30  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 7:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 27 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: TVIA/SNX-185, FIGURE 1  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 4  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 10  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 21  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; US-09-138-439-7  
; Query Match 95.9%; Score 140; DB 2; Length 27;  
; Best Local Similarity 100.0%; Pred. No. 4.2e-10;  
; Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 CLSXGSSCSXTSYNCCSCNYSRKCR 27

DB 1 CLSXGSSCSXTSYNCCSCNYSRKCR 27

RESULT 9  
US-08-613-400A-7  
; Sequence 7, Application US/08613400A  
; Patent No. 6054429  
; GENERAL INFORMATION:  
; APPLICANT: Bowersox, S. Scott  
; APPLICANT: Gadbois, Theresa  
; APPLICANT: Pettus, Mark, R.  
; APPLICANT: Luther, Robert, R.  
; TITLE OF INVENTION: IMPROVED EPIDURAL  
; TITLE OF INVENTION: METHOD OF PRODUCING ANALGESIA  
; NUMBER OF SEQUENCES: 36  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Dehlinger & Associates  
; STREET: 350 Cambridge Avenue, Suite 250  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: US  
; ZIP: 94306-1546  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Diskette  
; COMPUTER: IBM Compatible  
; OPERATING SYSTEM: DOS  
; SOFTWARE: FastSeq for Windows Version 2.0  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/613,400A  
; FILING DATE: 08-MAR-1996  
; CLASSIFICATION: 514  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER:  
; FILING DATE:  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0019  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 650-324-0880  
; TELEFAX: 650-324-0960  
; INFORMATION FOR SEQ ID NO: 7:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 27 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: TVIA/SNX-185, FIGURE 1  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 4  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 10  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 21  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; US-08-613-400A-7  
; Query Match 95.9%; Score 140; DB 3; Length 27;  
; Best Local Similarity 100.0%; Pred. No. 4.2e-10;  
; Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 CLSXGSSCSXTSYNCCSCNYSRKCR 27

DB 1 CLSXGSSCSXTSYNCCSCNYSRKCR 27

RESULT 10  
US-09-298-017-7  
; Sequence 7, Application US/09298017  
; Patent No. 6087091  
; GENERAL INFORMATION:  
; APPLICANT: JUSTICE, ALAN  
; APPLICANT: SINGH, TEJINDER  
; APPLICANT: GOHIL, KISHOR C  
; APPLICANT: VALENTINO, KAREN L  
; APPLICANT: MILJANICH, GEORGE P  
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
; NUMBER OF SEQUENCES: 34  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/09/298,017  
; FILING DATE:  
; CLASSIFICATION:  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 08/049,794  
; FILING DATE:  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0009.30  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 7:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 27 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: TVIA/SNX-185, FIGURE 1  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 4  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 10  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 21  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-09-298-017-7

Query Match 95.9%; Score 140; DB 3; Length 27;  
Best Local Similarity 100.0%; Pred. No. 4.2e-10;  
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CLSXGSSCSXTSYNCCRSNCNYSRKCR 27  
DB 1 CLSXGSSCSXTSYNCCRSNCNYSRKCR 27

RESULT 11

US-09-392-979A-7  
; Sequence 7, Application US/09392979A  
; Patent No. 6136786  
; GENERAL INFORMATION:  
; APPLICANT: JUSTICE, ALAN  
; APPLICANT: SINGH, TEJINDER  
; APPLICANT: GOHIL, KISHOR C  
; APPLICANT: VALENTINO, KAREN L  
; APPLICANT: MILJANICH, GEORGE P  
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
; NUMBER OF SEQUENCES: 34  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/09/392,979A  
; FILING DATE:  
; CLASSIFICATION:  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US/08/049,794  
; FILING DATE: 1993-04-15  
; APPLICATION NUMBER: US 07/814,759  
; FILING DATE: 30-DEC-1991  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0009.30  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 7:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 27 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: TVIA/SNX-185, FIGURE 1  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 4  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 10  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 21  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-09-392-979A-7

Query Match 95.9%; Score 140; DB 3; Length 27;  
Best Local Similarity 100.0%; Pred. No. 4.2e-10;  
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CLSXGSSCSXTSYNCCRSNCNYSRKCR 27  
DB 1 CLSXGSSCSXTSYNCCRSNCNYSRKCR 27

RESULT 12

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5189020-7
; Patent No. 5189020
; APPLICANT: Miljanich, George P.; Bitner, Robert S.; Bowersox,
; Stephen S.; Fox, James A.; Valentino, Karen L.; Yamashiro, Donald
; H.; Taubokawa, Makoto
; TITLE OF INVENTION: METHOD OF REDUCING NEURONAL DAMAGE USING
; OMEGA CONOTOXIN PEPTIDES
; NUMBER OF SEQUENCES: 29
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/561,766
; FILING DATE: 02-AUG-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 440,094
; FILING DATE: 22-NOV-1989
; SEQ ID NO: 7:
; LENGTH: 27
5189020-7

Query Match          95.9%; Score 140; DB 6; Length 27;
Best Local Similarity 100.0%; Pred. No. 4.2e-10;
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRSNCNYSRKCR 27
DB 1 CLSXGSSCSXTSYNCCRSNCNYSRKCR 27

RESULT 15
5424218-7
; Patent No. 5424218
; APPLICANT: Miljanich, George P.; Bitner, Robert S.; Bowersox,
; Stephen S.; Fox, James A.; Valentino, Karen L.; Yamashiro, Donald H.
; TITLE OF INVENTION: SCREENING METHOD FOR NEUROPROTECTIVE COMPOUNDS
; NUMBER OF SEQUENCES: 21
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/147,714
; FILING DATE: 04-NOV-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 855,269
; FILING DATE: 23-MAR-1992
; APPLICATION NUMBER: 561,766
; FILING DATE: 02-AUG-1990
; APPLICATION NUMBER: 440,094
; FILING DATE: 22-NOV-1989
; SEQ ID NO: 7:
; LENGTH: 27
5424218-7

Query Match          95.9%; Score 140; DB 6; Length 27;
Best Local Similarity 100.0%; Pred. No. 4.2e-10;
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRSNCNYSRKCR 27
DB 1 CLSXGSSCSXTSYNCCRSNCNYSRKCR 27

Search completed: March 23, 2005, 00:20:50
Job time : 21.8317 secs

5189020-7
; Patent No. 5189020
; APPLICANT: Miljanich, George P.; Bitner, Robert S.; Bowersox,
; Stephen S.; Fox, James A.; Valentino, Karen L.; Yamashiro, Donald
; H.; Taubokawa, Makoto
; TITLE OF INVENTION: METHOD OF REDUCING NEURONAL DAMAGE USING
; OMEGA CONOTOXIN PEPTIDES
; NUMBER OF SEQUENCES: 29
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/561,766
; FILING DATE: 02-AUG-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 440,094
; FILING DATE: 22-NOV-1989
; SEQ ID NO: 7:
; LENGTH: 27
5189020-7

Query Match          95.9%; Score 140; DB 6; Length 27;
Best Local Similarity 100.0%; Pred. No. 4.2e-10;
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRSNCNYSRKCR 27
DB 1 CLSXGSSCSXTSYNCCRSNCNYSRKCR 27

RESULT 14
5189020-7
; Patent No. 5189020
; APPLICANT: Miljanich, George P.; Bitner, Robert S.; Bowersox,
; Stephen S.; Fox, James A.; Valentino, Karen L.; Yamashiro, Donald
; H.; Taubokawa, Makoto
; TITLE OF INVENTION: METHOD OF REDUCING NEURONAL DAMAGE USING
; OMEGA CONOTOXIN PEPTIDES
; NUMBER OF SEQUENCES: 29
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/561,766
; FILING DATE: 02-AUG-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 440,094
; FILING DATE: 22-NOV-1989
; SEQ ID NO: 7:
; LENGTH: 27
5189020-7

Query Match          95.9%; Score 140; DB 6; Length 27;
Best Local Similarity 100.0%; Pred. No. 4.2e-10;
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRSNCNYSRKCR 27
DB 1 CLSXGSSCSXTSYNCCRSNCNYSRKCR 27

RESULT 13
5424218-7
; Patent No. 5424218
; APPLICANT: Miljanich, George P.; Bitner, Robert S.; Bowersox,
; Stephen S.; Fox, James A.; Valentino, Karen L.; Yamashiro, Donald H.
; TITLE OF INVENTION: SCREENING METHOD FOR NEUROPROTECTIVE COMPOUNDS
; NUMBER OF SEQUENCES: 21
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/147,714
; FILING DATE: 04-NOV-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 855,269
; FILING DATE: 23-MAR-1992
; APPLICATION NUMBER: 561,766
; FILING DATE: 02-AUG-1990
; APPLICATION NUMBER: 440,094
; FILING DATE: 22-NOV-1989
; SEQ ID NO: 7:
; LENGTH: 27
5424218-7

Query Match          95.9%; Score 140; DB 6; Length 27;
Best Local Similarity 100.0%; Pred. No. 4.2e-10;
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRSNCNYSRKCR 27
DB 1 CLSXGSSCSXTSYNCCRSNCNYSRKCR 27
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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 23:46:47 ; Search time 61.5743 Seconds  
(without alignments)  
144.941 Million cell updates/sec

Title: US-09-787-082A-17  
Perfect score: 146  
Sequence: 1 CLSXGSCSXTSYNCCRCNXYRKCR 27

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1401741 seqs, 330541175 residues

Total number of hits satisfying chosen parameters: 1401741

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : Published Applications AA.\*  
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7: /cgn2\_6/ptodata/2/pubpaa/US08\_NEW\_PUB.pep.\*  
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15: /cgn2\_6/ptodata/2/pubpaa/US10C\_PUBCOMB.pep.\*  
16: /cgn2\_6/ptodata/2/pubpaa/US10D\_PUBCOMB.pep.\*  
17: /cgn2\_6/ptodata/2/pubpaa/US10\_NEW\_PUB.pep.\*  
18: /cgn2\_6/ptodata/2/pubpaa/US11\_NEW\_PUB.pep.\*  
19: /cgn2\_6/ptodata/2/pubpaa/US60\_NEW\_PUB.pep.\*  
20: /cgn2\_6/ptodata/2/pubpaa/US60\_PUBCOMB.pep.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Match	Length	DB ID	Description
1	137	93.8	73	10	US-09-910-082A-286
2	137	93.8	73	16	US-10-765-926-286
3	124	84.9	27	16	US-09-910-082A-287
4	124	84.9	27	16	US-10-765-926-287
5	117	80.1	27	10	US-09-910-082A-356
6	117	80.1	27	16	US-10-765-926-356
7	117	80.1	73	10	US-09-910-082A-136
8	117	80.1	73	16	US-10-765-926-136
9	117	80.1	73	16	US-10-765-926-142
10	117	80.1	73	16	US-10-765-926-142
11	106	72.6	30	10	US-09-910-082A-364
12	106	72.6	30	16	US-10-765-926-364
13	106	72.6	75	10	US-09-910-082A-178

14	106	72.6	75	16	US-10-765-926-178	Sequence 178, App
15	105	71.9	73	10	US-09-910-082A-283	Sequence 283, App
16	105	71.9	73	16	US-10-765-926-283	Sequence 283, App
17	104	71.2	26	10	US-09-910-082A-145	Sequence 145, App
18	104	71.2	26	16	US-10-765-926-145	Sequence 145, App
19	104	71.2	27	10	US-09-910-082A-137	Sequence 137, App
20	104	71.2	27	16	US-10-765-926-137	Sequence 137, App
21	104	71.2	27	16	US-10-765-926-143	Sequence 143, App
22	104	71.2	28	10	US-09-910-082A-144	Sequence 144, App
23	104	71.2	28	16	US-10-765-926-144	Sequence 144, App
24	104	71.2	28	16	US-10-765-926-144	Sequence 144, App
25	95	65.1	27	10	US-09-910-082A-284	Sequence 284, App
26	95	65.1	27	16	US-10-765-926-284	Sequence 284, App
27	94	64.4	30	10	US-09-910-082A-358	Sequence 358, App
28	94	64.4	30	16	US-10-765-926-358	Sequence 358, App
29	94	64.4	76	10	US-09-910-082A-2	Sequence 2, Appli
30	94	64.4	76	16	US-10-765-926-2	Sequence 2, Appli
31	93	63.7	26	10	US-09-910-082A-413	Sequence 413, App
32	93	63.7	26	16	US-10-765-926-413	Sequence 413, App
33	92	63.0	30	10	US-09-910-082A-179	Sequence 179, App
34	92	63.0	30	16	US-10-765-926-179	Sequence 179, App
35	92	63.0	72	10	US-09-910-082A-232	Sequence 232, App
36	92	63.0	72	16	US-10-765-926-232	Sequence 232, App
37	91	62.3	29	10	US-09-910-082A-158	Sequence 158, App
38	91	62.3	29	16	US-10-765-926-158	Sequence 158, App
39	90	61.6	29	10	US-09-910-082A-368	Sequence 368, App
40	90	61.6	29	16	US-10-765-926-368	Sequence 368, App
41	90	61.6	75	10	US-09-910-082A-157	Sequence 157, App
42	90	61.6	75	16	US-10-765-926-157	Sequence 157, App
43	87	59.6	30	10	US-09-910-082A-3	Sequence 3, Appli
44	87	59.6	30	16	US-10-765-926-3	Sequence 3, Appli
45	81	55.5	35	10	US-09-910-082A-92	Sequence 92, Appli

ALIGNMENTS

RESULT 1  
US-09-910-082A-286  
; Sequence 286, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 286  
; LENGTH: 73  
; TYPE: PRT  
; ORGANISM: Conus tulipa  
US-09-910-082A-286

Query Match 93.8%; Score 137; DB 10; Length 73;  
Best Local Similarity 88.9%; Pred. No. 4.4e-09;  
Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CLSXGSCSXTSYNCCRCNXYRKCR 27

Db 46 CLSPGSSCSPTSYNCCRSCNPNYSRKCR 72  
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## RESULT 2

US-10-765-926-286  
; Sequence 286, Application US/10765926  
; Publication No. US20040132663A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/10/765,926  
; CURRENT FILING DATE: 2004-01-29  
; PRIOR APPLICATION NUMBER: US 09/910,082  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 286  
; LENGTH: 73  
; TYPE: PRT  
; ORGANISM: Conus tulipa  
US-10-765-926-286

Query Match 93.8%; Score 137; DB 16; Length 73;  
Best Local Similarity 88.9%; Pred. No. 4.4e-09;  
Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

Qy 1 CLSXGSSCSXTSYNCCRSCNPNYSRKCR 27  
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Db 46 CLSPGSSCSPTSYNCCRSCNPNYSRKCR 72  
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## RESULT 3

US-09-910-082A-287  
; Sequence 287, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 287  
; LENGTH: 27

; TYPE: PRT  
; ORGANISM: Conus tulipa  
; FEATURE:  
; NAME/KEY: PEPTIDE  
; LOCATION: (1)..(27)  
; OTHER INFORMATION: Xaa at residue 4, 10 and 21 is Pro or Hyp; Xaa at residue 13 and 22 is Tyr, 125I-Tyr, mono-iodo-Tyr, di-iodo-Tyr, O-sulpho-Tyr or  
; OTHER INFORMATION: O-phospho-Tyr  
US-09-910-082A-287

Query Match 84.9%; Score 124; DB 10; Length 27;  
Best Local Similarity 92.6%; Pred. No. 6.7e-08;  
Matches 25; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CLSXGSSCSXTSYNCCRSCNPNYSRKCR 27  
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Db 1 CLSXGSSCSXTSYNCCRSCNPNYSRKCR 27  
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## RESULT 4

US-10-765-926-287  
; Sequence 287, Application US/10765926  
; Publication No. US20040132663A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/10/765,926  
; CURRENT FILING DATE: 2004-01-29  
; PRIOR APPLICATION NUMBER: US 09/910,082  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 287  
; LENGTH: 27  
; TYPE: PRT  
; ORGANISM: Conus tulipa  
; FEATURE:  
; NAME/KEY: PEPTIDE  
; LOCATION: (1)..(27)  
; OTHER INFORMATION: Xaa at residue 4, 10 and 21 is Pro or Hyp; Xaa at residue 13 and 22 is Tyr, 125I-Tyr, mono-iodo-Tyr, di-iodo-Tyr, O-sulpho-Tyr or O-phospho-Tyr  
US-10-765-926-287

Query Match 84.9%; Score 124; DB 16; Length 27;  
Best Local Similarity 92.6%; Pred. No. 6.7e-08;  
Matches 25; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CLSXGSSCSXTSYNCCRSCNPNYSRKCR 27  
|||||

Db 1 CLSXGSSCSXTSYNCCRSCNPNYSRKCR 27  
|||||

## RESULT 5

US-09-910-082A-356  
; Sequence 356, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation



APPLICANT: Cognetix, Inc.  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Watkins, Maren  
APPLICANT: Garrett, James E.  
APPLICANT: Shon, Ki-Joon  
APPLICANT: Jacobsen, Richard  
APPLICANT: Jones, Robert M.  
APPLICANT: Cartier, G. Edward  
TITLE OF INVENTION: Omega-Conopeptides  
FILE REFERENCE: 2314-241  
CURRENT APPLICATION NUMBER: US/09/910,082A  
CURRENT FILING DATE: 2001-07-23  
PRIOR APPLICATION NUMBER: US 60/219,616  
PRIOR FILING DATE: 2000-07-21  
PRIOR APPLICATION NUMBER: US 60/265,888  
PRIOR FILING DATE: 2001-02-05  
NUMBER OF SEQ ID NOS: 413  
SOFTWARE: PatentIn version 3.0  
SEQ ID NO 356  
LENGTH: 27  
TYPE: PRT  
ORGANISM: Conus geographus  
US-09-910-082A-356

Query Match 80.1%; Score 117; DB 10; Length 27;  
Best Local Similarity 73.1%; Pred. No. 4.5e-07;  
Matches 19; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCRSCNXYSRKC 26  
DB 1 CKSPGSSCSPTSYNCRSCNYPYAKRC 26

RESULT 6  
US-10-765-926-356  
Sequence 356, Application US/10765926  
Publication No. US20040132663A1  
GENERAL INFORMATION:  
APPLICANT: University of Utah Research Foundation  
APPLICANT: Cognetix, Inc.  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Watkins, Maren  
APPLICANT: Garrett, James E.  
APPLICANT: Shon, Ki-Joon  
APPLICANT: Jacobsen, Richard  
APPLICANT: Jones, Robert M.  
APPLICANT: Cartier, G. Edward  
TITLE OF INVENTION: Omega-Conopeptides  
FILE REFERENCE: 2314-241  
CURRENT APPLICATION NUMBER: US/10/765,926  
CURRENT FILING DATE: 2004-01-29  
PRIOR APPLICATION NUMBER: US 09/910,082  
PRIOR FILING DATE: 2001-07-23  
PRIOR APPLICATION NUMBER: US 60/219,616  
PRIOR FILING DATE: 2000-07-21  
PRIOR APPLICATION NUMBER: US 60/265,888  
PRIOR FILING DATE: 2001-02-05  
NUMBER OF SEQ ID NOS: 413  
SOFTWARE: PatentIn version 3.0  
SEQ ID NO 356  
LENGTH: 27  
TYPE: PRT  
ORGANISM: Conus geographus  
US-10-765-926-356

Query Match 80.1%; Score 117; DB 16; Length 27;  
Best Local Similarity 73.1%; Pred. No. 4.5e-07;  
Matches 19; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCRSCNXYSRKC 26  
DB 1 CKSPGSSCSPTSYNCRSCNYPYAKRC 26

DB 1 CKSPGSSCSPTSYNCRSCNYPYAKRC 26

RESULT 7  
US-09-910-082A-136  
Sequence 136, Application US/09910082A  
Publication No. US20030119731A1  
GENERAL INFORMATION:  
APPLICANT: University of Utah Research Foundation  
APPLICANT: Cognetix, Inc.  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Watkins, Maren  
APPLICANT: Garrett, James E.  
APPLICANT: Shon, Ki-Joon  
APPLICANT: Jacobsen, Richard  
APPLICANT: Jones, Robert M.  
APPLICANT: Cartier, G. Edward  
TITLE OF INVENTION: Omega-Conopeptides  
FILE REFERENCE: 2314-241  
CURRENT APPLICATION NUMBER: US/09/910,082A  
CURRENT FILING DATE: 2001-07-23  
PRIOR APPLICATION NUMBER: US 60/219,616  
PRIOR FILING DATE: 2000-07-21  
PRIOR APPLICATION NUMBER: US 60/265,888  
PRIOR FILING DATE: 2001-02-05  
NUMBER OF SEQ ID NOS: 413  
SOFTWARE: PatentIn version 3.0  
SEQ ID NO 136  
LENGTH: 73  
TYPE: PRT  
ORGANISM: Conus geographus  
US-09-910-082A-136

Query Match 80.1%; Score 117; DB 10; Length 73;  
Best Local Similarity 73.1%; Pred. No. 9.9e-07;  
Matches 19; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCRSCNXYSRKC 26  
DB 46 CKSPGSSCSPTSYNCRSCNYPYAKRC 71

RESULT 8  
US-09-910-082A-142  
Sequence 142, Application US/09910082A  
Publication No. US20030119731A1  
GENERAL INFORMATION:  
APPLICANT: University of Utah Research Foundation  
APPLICANT: Cognetix, Inc.  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Watkins, Maren  
APPLICANT: Garrett, James E.  
APPLICANT: Shon, Ki-Joon  
APPLICANT: Jacobsen, Richard  
APPLICANT: Jones, Robert M.  
APPLICANT: Cartier, G. Edward  
TITLE OF INVENTION: Omega-Conopeptides  
FILE REFERENCE: 2314-241  
CURRENT APPLICATION NUMBER: US/09/910,082A  
CURRENT FILING DATE: 2001-07-23  
PRIOR APPLICATION NUMBER: US 60/219,616  
PRIOR FILING DATE: 2000-07-21  
PRIOR APPLICATION NUMBER: US 60/265,888  
PRIOR FILING DATE: 2001-02-05  
NUMBER OF SEQ ID NOS: 413  
SOFTWARE: PatentIn version 3.0  
SEQ ID NO 142  
LENGTH: 73  
TYPE: PRT  
ORGANISM: Conus geographus  
US-09-910-082A-142

Query Match 80.1%; Score 117; DB 16; Length 27;  
Best Local Similarity 73.1%; Pred. No. 4.5e-07;  
Matches 19; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCRSCNXYSRKC 26  
DB 1 CKSPGSSCSPTSYNCRSCNYPYAKRC 26

RESULT 12  
US-10-765-926-364  
; Sequence 364, Application US/10765926  
; Publication No. US20040134663A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon



Qy 1 CLSXGSCSXTSYNCCRSXKCR 27  
Db 46 CKSPGSPSYNCCWSPYRKR 72

Search completed: March 23, 2005, 00:35:04  
Job time : 61.6457 secs

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:16:20 ; Search time 15.1485 Seconds  
(without alignments)  
171.492 Million cell updates/sec

Title: US-09-787-082A-17  
Perfect score: 146  
Sequence: 1 CLSXGSSCSXTSYNCCRCNXYRKR 27  
Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues  
Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : PIR 79.\*  
1: Piri:.\*  
2: Piri:.\*  
3: Piri:.\*  
4: Piri:.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	117	80.1	73	1 NTKN6G	omega-conotoxin GV
2	80	54.8	29	2 B43620	omega-conotoxin GV
3	79	54.1	29	2 A43620	omega-conotoxin GV
4	66.5	45.5	25	2 JH0701	omega-conotoxin MV
5	66.5	45.5	29	2 A58537	omega-conotoxin MV
6	64	43.8	26	2 C44379	omega-conotoxin SV
7	58	39.7	317	2 A33985	wound-inducible ch
8	57	39.0	301	2 T01499	NADPH HC toxin red
9	56.5	38.7	24	2 B44379	omega-conotoxin SV
10	56	38.4	455	2 T12041	cysteine proteinase
11	55.5	38.0	25	2 JH0700	omega-conotoxin MV
12	54.5	37.3	169	1 S18946	ultra high-sulfur
13	54	37.0	2910	2 T42214	otogelin - mouse
14	53	36.3	68	2 S44391	metallothionein 3
15	52	35.6	29	2 JH0699	omega-conotoxin MV
16	52	35.6	68	2 B46034	metallothionein 3
17	52	35.6	68	2 S44392	metallothionein II
18	52	35.6	68	2 JH0699	procollagen N-endo
19	52	35.6	1205	2 T12917	toxin CSTX-1 - wan
20	51.5	35.3	70	2 T12911	cellulose 1,4-beta
21	51.5	35.3	429	2 T21113	metallothionein 3
22	51	34.9	1224	2 T00059	hypothetical prote
23	51	34.9	2946	2 T15840	hypothetical prote
24	50.5	34.6	74	2 A53356	hypothetical prote
25	50.5	34.6	352	2 S11926	cellulose 1,4-beta
26	50	34.2	66	2 S58086	metallothionein 3
27	50	34.2	67	2 T11547	metallothionein -
28	50	34.2	68	2 I67866	growth inhibitory
29	50	34.2	68	2 A46034	metallothionein 3,

30	50	34.2	191	2 I46412	keratin KAPS.4 - s
31	50	34.2	358	2 T34128	hypothetical prote
32	49.5	33.9	228	2 T31634	hypothetical prote
33	49	33.6	61	1 SMMSI	metallothionein I
34	49	33.6	61	2 I54574	metallothionein-1
35	49	33.6	223	2 B38346	ultra-high-sulfur
36	49	33.6	230	2 A38346	ultra-high-sulfur
37	49	33.6	464	2 S24602	cysteine proteinase
38	48.5	33.2	102	2 T10199	hypothetical prote
39	48.5	33.2	1714	2 E71609	Ser/Thr protein ki
40	48.5	33.2	1808	2 T15099	hypothetical prote
41	48	32.9	60	2 S30567	metallothionein -
42	48	32.9	295	2 JC5559	lectin-B - Virgini
43	48	32.9	365	2 T29224	hypothetical prote
44	48	32.9	601	2 G96558	probable protein k
45	48	32.9	1065	2 T52054	cellulose synthase

ALIGNMENTS

RESULT 1

NTKN6G

omega-conotoxin GVIB precursor [validated] - cone shell (Conus geographus)  
N;Alternate names: shaker peptide GVIB  
N;Contains: omega-conotoxin GVIA; omega-conotoxin GVIC  
C;Species: Conus geographus (geography cone)  
C;Date: 25-Feb-1985 #sequence revision 23-Mar-1995 #text\_change 09-Jul-2004  
C;Accession: A44006; A60133; B60133; A01785  
R;Colledge, C.J.; Hunsperger, J.P.; Imperial, J.S.; Hillyard, D.R.  
Toxicon 30, 1111-1116, 1992  
A;Title: Precursor structure of omega-conotoxin GVIA determined from a cDNA clone.  
A;Reference number: A44006; MUID:93069266; PMID:1440648  
A;Accession: A44006  
A;Molecule type: mRNA  
A;Residues: 1-73 <COL>  
A;Cross-references: UNIPROT:P01522; GB:M84612; NID:G1565520; PIDN:AAA81590.1; PID:G1070393  
A;Experimental source: venom duct  
A;Note: sequence extracted from NCBI backbone (NCBIN:119531, NCBIPI:119532)  
R;Olivera, B.M.; Gray, W.R.; Zeikus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Santos  
Science 230, 1338-1343, 1985  
A;Title: Peptide neurotoxins from fish-hunting cone snails.  
A;Reference number: A43620; MUID:86070213; PMID:4071055  
A;Accession: A60133  
A;Molecule type: protein  
A;Residues: 46-73 <OLI>  
A;Accession: B60133  
A;Molecule type: protein  
A;Residues: 46-71 <OLI>  
R;Olivera, B.M.; McIntosh, J.M.; Cruz, L.J.; Luque, F.A.; Gray, W.R.  
Biochemistry 23, 5087-5090, 1984  
A;Title: Purification and sequence of a presynaptic peptide toxin from Conus geographus  
A;Reference number: A01785; MUID:85072796; PMID:6509012  
A;Accession: A01785  
A;Molecule type: protein  
A;Residues: 46-72 <OLI>  
R;Nishitani, Y.; Kumagae, K.; Noda, Y.; Watanabe, T.X.; Sakakibara, S.  
Biopolymers 25, S61-S68, 1986  
A;Title: Synthesis and secondary-structure determination of omega-conotoxin GVIA: a 27-peptide  
A;Reference number: A49017; MUID:87049928; PMID:3779030  
A;Contents: annotation  
A;Note: disulfide bonds determined and confirmed by chemical synthesis  
R;Davis, J.H.; Bradley, E.K.; Miljanich, G.P.; Nadasdi, L.; Ramachandran, J.; Basus, V.J.  
submitted to the Brookhaven Protein Data Bank, April 1993  
A;Reference number: A51894; PDB:1OMC  
A;Contents: annotation; conformation by (1)H-NMR, residues 46-72  
R;Davis, J.H.; Bradley, E.K.; Miljanich, G.P.; Nadasdi, L.; Ramachandran, J.; Basus, V.J.  
Biochemistry 32, 7396-7405, 1993  
A;Title: Solution structure of omega-conotoxin GVIA using 2-D NMR spectroscopy and relaxation  
A;Reference number: A58536; MUID:93332945; PMID:8338837  
A;Contents: annotation; conformation by (1)H-NMR  
R;Fallaghy, P.K.; Duggan, B.M.; Fenington, M.W.; Norton, R.S.  
submitted to the Brookhaven Protein Data Bank, August 1993



RESULT 6  
C44379  
omega-conotoxin SVIB [validated] - cone shell (Conus striatus)  
N;Alternate names: SNX-183  
C;Species: Conus striatus (striated cone)  
C;Date: 31-Dec-1993 #sequence\_revision 31-Dec-1993 #text\_change 15-Sep-2000  
C;Accession: C44379  
R;Ramillo, C.A.; Zafaralla, G.C.; Nadasdi, L.; Hammerland, L.G.; Yoshikami, D.; Gray, W.R.  
Biochemistry 31, 9919-9926, 1992  
A;Title: Novel alpha- and omega-conotoxins from Conus striatus venom.  
A;Reference number: A44379; MUID:93003172; PMID:1390774  
A;Accession: C44379  
A;Molecule type: protein  
A;Residues: 1-26 <RAM>  
A;Cross-references: CAS:143306-19-8  
A;Experimental source: venom  
A;Note: sequence extracted from NCBI backbone (NCBIP:116002); structure confirmed by chemo-physicochemical analysis  
R;Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.  
submitted to the Brookhaven Protein Data Bank, August 1996  
A;Reference number: A67649; PDB:1MVJ  
A;Contents: annotation; conformation by (1)H-NMR, residues 1-26  
R;Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.  
J. Mol. Biol. 263, 297-310, 1996  
A;Title: A consensus structure for omega-conotoxins with different selectivities for voltage-gated calcium channels  
A;Reference number: A58619; MUID:97070382; PMID:8913308  
A;Contents: annotation; conformation by (1)H-NMR  
C;Comment: This omega-conotoxin blocks presynaptic calcium channels.  
C;Superfamily: omega-conotoxin  
C;Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inhibitor; 1,16,8-20,15-26/disulfide bonds; #status predicted  
F;1-16,8-20,15-26/disulfide bonds: #status predicted  
F;26/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 43.8%; Score 64; DB 2; Length 26;  
Best Local Similarity 46.2%; Pred. No. 0.32;  
Matches 12; Conservative 1; Mismatches 13; Indels 0; Gaps 0;  
QY 1 CLSXGSSCSXTSYNCCRSNCXYSRKC 26  
DB 1 CKLKGQSCRTSYDCCSGSGRSGKC 26

RESULT 7  
A33985  
wound-inducible chitinase homolog win8 precursor - black poplar (fragment)  
C;Species: Populus nigra (black poplar)  
C;Date: 23-Mar-1990 #sequence\_revision 23-Mar-1990 #text\_change 09-Jul-2004  
C;Accession: A33985  
R;Parsons, T.J.; Bradshaw Jr., H.D.; Gordon, M.P.  
Proc. Natl. Acad. Sci. U.S.A. 86, 7895-7899, 1989  
A;Title: Systemic accumulation of specific mRNAs in response to wounding in poplar trees  
A;Reference number: A33985; MUID:90046703; PMID:2813366  
A;Accession: A33985  
A;Status: preliminary  
A;Molecule type: mRNA  
A;Residues: 1-317 <PAR>  
A;Cross-references: UNIPROT:P16061; GB:M25337  
C;Superfamily: lectin-related plant chitinase; hevein chitin-binding domain homology; plant chitinase  
F;25-66/Domain: hevein chitin-binding domain homology <HCB>  
F;67-306/Domain: plant chitinase homology <PCH>

Query Match 39.7%; Score 58; DB 2; Length 317;  
Best Local Similarity 38.5%; Pred. No. 7.5;  
Matches 10; Conservative 0; Mismatches 16; Indels 0; Gaps 0;  
QY 1 CLSXGSSCSXTSYNCCRSNCXYSRKC 26  
DB 41 CCSSGGYGLTWAYCCAGCVSQCRNC 66

RESULT 8  
T01499  
NADPH HC toxin reductase - maize (strain B73) (fragment)

C;Species: Zea mays (maize)  
C;Date: 12-Feb-1999 #sequence\_revision 12-Feb-1999 #text\_change 09-Jul-2004  
C;Accession: T01499  
R;Mullani, D.S.; Meeley, R.B.; Paterson, A.H.; Gray, J.; Briggs, S.P.; Johal, G.S.  
Proc. Natl. Acad. Sci. U.S.A. 95, 1686-1691, 1998  
A;Title: Plant pathogen microevolution: molecular basis for the origin of a fungal disease  
A;Reference number: Z14328; MUID:98132652; PMID:9465077  
A;Accession: T01499  
A;Status: preliminary; translated from GB/EMBL/DBJ  
A;Molecule type: DNA  
A;Residues: 1-301 <MUL>  
A;Cross-references: UNIPROT:O49167; EMBL:AF041047; NID:G2911365; PIDN:AAC04337.1; PID:G2911365  
A;Experimental source: strain B73  
C;Genetics:  
A;Gene: hm2  
A;Map position: 9L  
A;Introns: 42/1; 99/3; 175/3

Query Match 39.0%; Score 57; DB 2; Length 301;  
Best Local Similarity 45.5%; Pred. No. 9.4;  
Matches 10; Conservative 3; Mismatches 9; Indels 0; Gaps 0;  
QY 5 GSSCSXTSYNCCRSNCXYSRKC 26  
DB 231 GKSSPSSSSGCCRCAPSRRWC 252

RESULT 9  
B44379  
omega-conotoxin SVIA - cone shell (Conus striatus)  
N;Alternate names: SNX-157  
C;Species: Conus striatus (striated cone)  
C;Date: 31-Dec-1993 #sequence\_revision 31-Dec-1993 #text\_change 09-Jul-2004  
C;Accession: B44379  
R;Ramillo, C.A.; Zafaralla, G.C.; Nadasdi, L.; Hammerland, L.G.; Yoshikami, D.; Gray, W.R.  
Biochemistry 31, 9919-9926, 1992  
A;Title: Novel alpha- and omega-conotoxins from Conus striatus venom.  
A;Reference number: A44379; MUID:93003172; PMID:1390774  
A;Accession: B44379  
A;Molecule type: protein  
A;Residues: 1-24 <RAM>  
A;Cross-references: UNIPROT:Q9N604; UNIPROT:Q9NCU3; UNIPROT:Q9NCU4; UNIPROT:Q9NCU2; UNIPROT:Q9NCU1  
A;Experimental source: venom  
A;Note: sequence extracted from NCBI backbone (NCBIP:116001); structure confirmed by chemico-physicochemical analysis  
C;Comment: This omega-conotoxin blocks presynaptic calcium channels.  
C;Superfamily: omega-conotoxin  
C;Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inhibitor; 1-15,8-18,14-23/disulfide bonds; #status predicted  
F;1-15,8-18,14-23/disulfide bonds: #status predicted  
F;24/Modified site: amidated carboxyl end (Thr) #status experimental

Query Match 38.7%; Score 56.5; DB 2; Length 24;  
Best Local Similarity 50.0%; Pred. No. 2.2;  
Matches 13; Conservative 0; Mismatches 10; Indels 3; Gaps 2;  
QY 1 CLSXGSSCSXTSYNCCRSNCXYSRKC 26  
DB 1 CRSSGSPCGWTST-CCGRG--YRGKC 23

RESULT 10  
T12041  
cysteine proteinase (EC 3.4.22.-) 3 precursor - kidney bean  
C;Species: Phaseolus vulgaris (kidney bean)  
C;Date: 16-Jul-1999 #sequence\_revision 16-Jul-1999 #text\_change 09-Jul-2004  
C;Accession: T12041  
R;Senyuk, V.; Becker, C.; Muentz, K.  
submitted to the EMBL Data Library, October 1997  
A;Description: Isolation of cDNA clone encoding cysteine proteinase (CP3) from a cotyledon of Phaseolus vulgaris  
A;Reference number: Z17387  
A;Accession: T12041  
A;Status: preliminary; translated from GB/EMBL/DBJ  
A;Molecule type: DNA  
A;Residues: 1-455 <SEN>

A:Cross-references: UNIPROT:O24323; EMBL:Z99954  
A:Experimental source: cultivar Moldavian; cotyledon; clone cp71  
C:Superfamily: papain  
C:Keywords: cysteine proteinase; hydrolase  
F:1-13/Domain: signal sequence #status predicted <SIG>  
F:14-126/Domain: propeptide #status predicted <PRO>  
F:127-455/Product: cysteine proteinase 3 #status predicted <MAT>  
F:151,287,307/Active site: Cys, His, Asn #status predicted

Query Match 38.4%; Score 56; DB 2; Length 455;  
Best Local Similarity 33.3%; Pred. No. 16;  
Matches 10; Conservative 4; Mismatches 12; Indels 4; Gaps 1;

QY 1 CLSXGSSCSXTSYNCCRS-----CNXYSRKC 26  
DB 394 CPLEGATCCDDHYSCPHDPICNTYAGTC 423

## RESULT 11

omega-conotoxin MVIIA [validated] - cone shell (Conus magus)  
C:Species: Conus magus (magus cone)  
C:Date: 17-Apr-1993 #sequence revision 17-Apr-1993 #text\_change 09-Jul-2004  
A:Accession: JH0700; C60133; A34115  
R:Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadasdi, L.; Ramachandran, J.; M  
Neuron 9, 69-77, 1992  
A:Title: A new conus peptide ligand for mammalian presynaptic Ca2+ channels.  
A:Reference number: JH0700; MUID:92337922; PMID:1352986  
A:Accession: JH0700  
A>Status: nucleic acid sequence not shown  
A:Molecule type: mRNA  
A:Residues: 1-25 <HIL>  
A:Cross-references: UNIPROT:P05484  
R:Olivera, B.M.; Gray, W.R.; Zeikus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Santo  
Science 230, 1338-1343, 1985  
A:Title: Peptide neurotoxins from fish-hunting cone snails.  
A:Reference number: A34620; MUID:86070213; PMID:4071055  
A:Accession: C60133  
A:Molecule type: protein  
A:Residues: 1-25 <OLI>  
R:Olivera, B.M.; Cruz, L.J.; de Santos, V.; LeCheminant, G.W.; Griffin, D.; Zeikus, R.;  
Biochemistry 26, 2086-2090, 1987  
A:Title: Neuronal calcium channel antagonists. Discrimination between calcium channel su  
A:Reference number: A34115; MUID:87299637; PMID:24411741  
A:Contents: annotation  
A:Contents: annotation  
R:Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.  
submitted to the Brookhaven Protein Data Bank, August 1996  
A:Reference number: A67648; PDB:1MWI  
A:Contents: annotation; conformation by (1)H-NMR, residues 1-25  
R:Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.  
J. Mol. Biol. 263, 297-310, 1996  
A:Title: A consensus structure for omega-conotoxins with different selectivities for vol  
A:Reference number: A58619; MUID:97070382; PMID:8913308  
A:Contents: annotation; conformation by (1)H-NMR  
R:Kohn, T.; Kim, J.I.; Kobayashi, K.; Kadera, Y.; Maeda, T.; Sato, K.  
submitted to the Brookhaven Protein Data Bank, April 1995  
A:Reference number: A66296; PDB:1OMG  
A:Contents: annotation; conformation by (1)H-NMR, residues 1-25  
R:Kohn, T.; Kim, J.I.; Kobayashi, K.; Kadera, Y.; Maeda, T.; Sato, K.  
Biochemistry 34, 10256-10265, 1995  
A:Title: Three-dimensional structure in solution of the calcium channel blocker omega-co  
A:Reference number: A58627; MUID:95367555; PMID:7640281  
A:Contents: annotation; conformation by (1)H-NMR  
C:Superfamily: omega-conotoxin  
C:Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh  
F:1-16, 15-25/Disulfide bonds: #status predicted  
F:25/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 38.0%; Score 55.5; DB 2; Length 25;  
Best Local Similarity 44.4%; Pred. No. 2.9;  
Matches 12; Conservative 2; Mismatches 10; Indels 3; Gaps 2;

QY 1 CLSXGSSCSXTSYNCCR-SCNXYSRKC 26

Db 1 CKKGKACSRMLWYDCTGTCR--SGKC 25

## RESULT 12

Si8946  
ultra high-sulfur keratin 1 - human  
N:Alternate names: UHS keratin; ultra high-sulfur matrix protein  
C:Species: Homo sapiens (man)  
C:Date: 22-Oct-1999 #sequence revision 22-Oct-1999 #text\_change 09-Jul-2004  
A:Accession: Si8946; B36686  
R:Drabant, B.; Doenecke, D.  
submitted to the EMBL Data Library, December 1991  
A:Description: Nucleotide sequence of a Human high-sulphur keratin cDNA.  
A:Reference number: Si8946  
A:Accession: Si8946  
A:Molecule type: mRNA  
A:Residues: 1-169 <DRA>  
A:Cross-references: UNIPROT:Q14564; EMBL:X63755; NID:g32471; PIDN:CAA45283.1; PID:g32472  
R:Mackinnon, P.J.; Powell, B.C.; Rogers, G.E.  
J. Cell Biol. 111, 2587-2600, 1990  
A:Title: Structure and expression of genes for a class of cysteine-rich proteins of the c  
A:Reference number: A36686; MUID:91115951; PMID:1703541  
A:Accession: B36686  
A:Molecule type: DNA  
A:Residues: 1-39, 'Y, 41-169 <MAC>  
A:Cross-references: GB:X55293; NID:g34078; PIDN:CAA39005.1; PID:g34079  
C:Genetics:  
A:Gene: GDB:KRNI  
A:Cross-references: GDB:125257; OMIM:148021  
A:Map position: 11q13-11q13  
C:Superfamily: ultra-high-sulfur keratin  
C:Keywords: hair; tandem repeat  
F:7-15/Region: Ser-rich nonapeptide repeat  
F:59-68/Region: Gly-rich decapeptide repeat  
F:69-78/Region: Gly-rich decapeptide repeat  
F:79-88/Region: Cys-rich decapeptide repeat  
F:89-97/Region: Ser-rich nonapeptide repeat  
F:98-107/Region: Cys-rich decapeptide repeat  
F:108-117/Region: Cys-rich decapeptide repeat  
F:118-126/Region: Ser-rich nonapeptide repeat  
F:127-136/Region: Cys-rich decapeptide repeat  
F:137-145/Region: Ser-rich nonapeptide repeat  
F:146-155/Region: Cys-rich decapeptide repeat  
F:156-165/Region: Cys-rich decapeptide repeat

Query Match 37.3%; Score 54.5; DB 1; Length 169;  
Best Local Similarity 44.8%; Pred. No. 13;  
Matches 13; Conservative 2; Mismatches 9; Indels 5; Gaps 2;

QY 1 CLSX----GSSCSXTSYNCCRS--CNXYSRKC 26  
DB 134 CCSSGCGSSCCQSS--CCKPCCSQSRCC 160

## RESULT 13

T42214  
otogelin - mouse  
N:Alternate names: mucin-like extracellular matrix protein  
C:Species: Mus musculus (house mouse)  
C:Date: 03-Dec-1999 #sequence revision 03-Dec-1999 #text\_change 16-Aug-2004  
A:Accession: T42214  
R:Cohen-Salmon, M.; El-Amraoui, A.; Leibovici, M.; Petit, C.  
Proc. Natl. Acad. Sci. U.S.A. 94, 14450-14455, 1997  
A:Title: Otogelin: A glycoprotein specific to the acellular membranes of the inner ear.  
A:Reference number: Z22079; MUID:98070772; PMID:9405633  
A:Accession: T42214  
A>Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-2910 <CHN>  
A:Cross-references: UNIPROT:O55225; EMBL:U96411; NID:g2760883; PID:g2760884; PIDN:AAB965  
A:Experimental source: strain BALB/c  
A>Note: component of all the acellular membranes of the inner ear



C:Superfamily: von Willebrand factor type A repeat homology; von Willebrand factor type

Query Match 37.0%; Score 54; DB 2; Length 2910;  
Best Local Similarity 33.3%; Pred. No. 87;  
Matches 9; Conservative 3; Mismatches 15; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRSNCXYSRKC 27

Db 2800 CAKVGGSVVPFSLGECCKRACKGRCK 2826

## RESULT 14

S44391

metallothionein 3 - bovine

N:Alternate names: neuronal growth inhibitory factor

C:Species: Bos primigenius taurus (cattle)

C:Date: 19-Mar-1997 #sequence\_revision 19-Mar-1997 #text\_change 09-Jul-2004

C:Accession: S44391

R:Pountney, D.L.; Fundel, S.M.; Fallier, P.; Birchler, N.E.; Hunziker, P.; Vasak, M.

FEBS Lett. 345, 193-197, 1994

A:Title: Isolation, primary structures and metal binding properties of neuronal growth i

A:Reference number: S44391; MUID:94259179; PMID:8200454

A:Accession: S44391

A:Status: preliminary

A:Molecule type: protein

A:Residues: 1-68 &lt;POU&gt;

A:Cross-references: UNIPROT:P37359

C:Superfamily: metallothionein

Query Match 36.3%; Score 53; DB 2; Length 68;  
Best Local Similarity 30.8%; Pred. No. 11;  
Matches 8; Conservative 3; Mismatches 15; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRSNCXYSRKC 26

Db 20 CKCEGCTCASCCKSCSCCPAECCK 45

## RESULT 15

JH0699

omega-conotoxin MVIIC precursor [validated] - cone shell (Conus magus) (fragment)

C:Species: Conus magus (magus cone)

C:Date: 17-Apr-1993 #sequence\_revision 11-Apr-1997 #text\_change 09-Jul-2004

C:Accession: JH0699; PC2380

R:Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadasdi, L.; Ramachandran, J.; M

Neuron 9, 69-77, 1992

A:Title: A new conus peptide ligand for mammalian presynaptic Ca2+ channels.

A:Reference number: JH0699; MUID:92337922; PMID:1352986

A:Accession: JH0699

A:Molecule type: mRNA

A:Residues: 1-29 &lt;HIL&gt;

A:Cross-references: UNIPROT:P37300; GB:S40826; NID:G252126; PIDN:AAB22674.1; PID:G252127

R:Nemoto, N.; Kubo, S.; Yoshida, T.; Chino, N.; Kimura, T.; Sakakibara, S.; Kyogoku, Y.;

Biochem. Biophys. Res. Commun. 207, 695-700, 1995

A:Title: Solution structure of omega-conotoxin MVIIC determined by NMR.

A:Reference number: PC2380; MUID:95169113; PMID:7864862

A:Accession: PC2380

A:Molecule type: protein

A:Residues: 3-28 &lt;NEM&gt;

R:Parrr-Jones, S.; Basus, V.J.

submitted to the Brookhaven Protein Data Bank, December 1994

A:Reference number: A66297; PDB:1OMN

A:Contents: annotation; conformation by (1)H-NMR, residues 3-28

R:Parrr-Jones, S.; Miljanich, G.P.; Nadasdi, L.; Ramachandran, J.; Basus, V.J.

J. Mol. Biol. 248, 106-124, 1995

A:Title: Solution structure of omega-conotoxin MVIIC, a high affinity of P-type calcium

A:Reference number: A58582; MUID:95248539; PMID:7731037

A:Contents: annotation; conformation by (1)H-NMR

C:Superfamily: omega-conotoxin

C:Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh

P:3-28/Product: omega-conotoxin MVIIC #status experimental &lt;MAT&gt;

P:3-18,10-22,17-28/Disulfide bonds: #status experimental

P:28/Modified site: amidated carboxyl end (Cys) (amide in mature form from following gly

Query Match 35.6%; Score 52; DB 2; Length 29;  
Best Local Similarity 34.6%; Pred. No. 8;  
Matches 9; Conservative 2; Mismatches 15; Indels 0; Gaps 0;

QY 1 CLSXGSSCSXTSYNCCRSNCXYSRKC 26

Db 3 CKGKGAPCRKTWYDCSCGSGRRGKC 28

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Job time : 15.1485 secs

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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:44:17 ; Search time 80.8581 Seconds  
(without alignments)  
119,580 Million cell updates/sec

Title: US-09-787-082A-10  
Perfect score: 151  
Sequence: 1 CKGKAKCSRLMYDCTGCSRGKC 25

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

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1: geneseqp1980s:.\*  
2: geneseqp1990s:.\*  
3: geneseqp2000s:.\*  
4: geneseqp2001s:.\*  
5: geneseqp2002s:.\*  
6: geneseqp2003as:.\*  
7: geneseqp2003bs:.\*  
8: geneseqp2004s:.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	151	100.0	25	2 AAR39608	MVIIA/SNX
2	151	100.0	25	2 AAR37752	Aar37752 MVIIA/SNX
3	151	100.0	25	2 AAR32777	Aar32777 MVIIA Ome
4	151	100.0	25	2 AAR76089	Aar76089 Omega con
5	151	100.0	25	2 AAR19544	Aar19544 Natural o
6	151	100.0	25	2 AAR19569	Aar19569 SNX-279,
7	151	100.0	25	2 AAR12967	Aar12967 Omega con
8	151	100.0	25	2 AAR72605	Aar72605 Conus gen
9	151	100.0	25	2 AAR95564	Aar95564 Omega-con
10	151	100.0	25	2 AAR42335	Aar42335 Omega-con
11	151	100.0	25	3 AAY56473	Aay56473 Natural o
12	151	100.0	25	3 AAY43714	Aay43714 Amino aci
13	151	100.0	25	3 AAB14352	Aab14352 Omega-con
14	151	100.0	25	4 AAB92219	Aab92219 Toxin pep
15	151	100.0	25	4 AAB19442	Aab19442 Primary s
16	151	100.0	25	4 AAB97046	Aab97046 Omega-con
17	151	100.0	25	5 AAO15124	AAO15124 Cone snai
18	151	100.0	26	2 AAR12546	Aar12546 Omega con
19	151	100.0	26	2 AAR37765	Aar37765 SNX-193.
20	151	100.0	26	2 AAR19557	Aar19557 SNX-193,
21	151	100.0	26	3 AAY56485	Aay56485 Analogue
22	151	100.0	27	2 AAR13266	Aar13266 Omega con
23	151	100.0	27	2 AAR13265	Aar13265 Omega con
24	151	100.0	27	2 AAR37768	Aar37768 SNX-196.
25	151	100.0	27	2 AAR37769	Aar37769 SNX-197.

26	151	100.0	27	2 AAW19561	Aaw19561 SNX-197,
27	151	100.0	27	2 AAW19560	Aaw19560 SNX-196,
28	151	100.0	27	3 AAY56488	Aay56488 Analogue
29	151	100.0	27	3 AAY56489	Aay56489 Analogue
30	151	100.0	29	3 AAY84655	Aay84655 Amino aci
31	151	100.0	32	3 AAY84656	Aay84656 Amino aci
32	151	100.0	32	3 AAY84654	Aay84654 Amino aci
33	148	98.0	25	2 AAR12547	Aar12547 Omega con
34	148	98.0	25	4 AAB97043	Aab97043 Omega-con
35	147	97.4	25	4 AAB97044	Aab97044 Omega-con
36	147	97.4	25	4 AAB97045	Aab97045 Omega-con
37	145	96.0	25	2 AAR12544	Aar12544 Omega con
38	145	96.0	25	2 AAR13264	Aar13264 Omega con
39	145	96.0	25	2 AAR12545	Aar12545 Omega con
40	145	96.0	25	2 AAR39625	Aar39625 SNX-198.
41	145	96.0	25	2 AAR39618	Aar39618 SNX-190.
42	145	96.0	25	2 AAR39621	Aar39621 SNX-194.
43	145	96.0	25	2 AAR39622	Aar39622 SNX-195.
44	145	96.0	25	2 AAR39619	Aar39619 SNX-191.
45	145	96.0	25	2 AAR39626	Aar39626 SNX-200.

## ALIGNMENTS

## RESULT 1

AAR39608  
ID AAR39608 standard; peptide; 25 AA.

XX AAR39608;  
XX AC  
XX DT 25-MAR-2003 (revised)  
XX DT 20-DEC-1993 (first entry)  
XX MVIIA/SNX111.  
XX Omega conopeptide; OCT; analgesia; inhibition; voltage-gated;  
KW calcium channel; neurone; contraction; guinea pig; ileum; MVIIA;  
KW binding site; toxin; marine; snail; Conus; opiod; chronic pain;  
KW narcotics.  
XX Synthetic.  
XX OS  
XX Key  
FH Disulfide-bond 1. .16  
FT Disulfide-bond 8. .20  
FT Disulfide-bond 15. .25

XX WO9313128-A1.  
XX 08-JUL-1993.  
XX 30-DEC-1992; 92WO-US011349.  
XX 30-DEC-1991; 91US-00814759.  
XX (NEUR-) NEUREX CORP.  
XX Justice A, Singh T, Gohil K, Valentino KL, Miljanich GP;  
XX WPI; 1993-227270/28.  
XX Use of omega-cono-peptide(s) which selectively inhibit voltage-gated  
PT calcium channels - to induce analgesia, enhance opiate analgesics, treat  
PT pain etc.  
XX Claim 1; Fig 1; 90pp; English.  
XX The sequences given in AAR39608-30 are omega conopeptides (OCTs) and  
CC derivatives of these, which may be used to produce analgesia in a mammal.  
CC These OCTs inhibit voltage-gated calcium channels selectively in neuronal  
CC tissue. This is shown by the peptides ability to stimulate contraction in  
CC guinea pig ileum and to bind to OCT MVIIA binding sites present in

CC neuronal tissue. OCTs are components of peptide toxins derived from  
 CC marine snails of the genus Conus, and act as calcium channel blockers.  
 CC These OCTs may be used to replace opiods in the treatment of chronic pain  
 CC or to reduce the opiod dosage required. This helps to reduce dependence  
 CC on and tolerance to opiod narcotics. (Updated on 25-MAR-2003 to correct  
 CC PN field.)  
 XX  
 SQ Sequence 25 AA;

Query Match 100.0%; Score 151; DB 2; Length 25;  
 Best Local Similarity 100.0%; Pred. No. 3.7e-10;  
 Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
 DB 1 CKGKGAKCSRLMYDCTGSCRSKGC 25

## RESULT 2

AAR37752  
 ID AAR37752 standard; peptide; 25 AA.

XX  
 AC AAR37752;

XX 25-MAR-2003 (revised)

DT 08-SEP-1993 (first entry)

XX  
 DE MVIIA/SNX-111.

XX Ischaemia; neuronal; omega-conotoxin; OCT; MVIIA; MVIIC; MVIID; MVIIB;  
 KW GVIA; GVIA; RVIA; SVIA; TVIA; SVIB; SNX-207; stroke; delayed treatment;  
 KW antihistamine; blood pressure; N-type voltage-gated Ca currents;  
 KW N-channel mediated neurotransmitter release.

OS Synthetic.

XX Key Location/Qualifiers  
 FH Disulfide-bond 1. .16  
 FT Disulfide-bond 8. .20  
 FT Disulfide-bond 15. .25

XX WO9310145-A1.

XX 27-MAY-1993.

XX 12-NOV-1992; 92WO-US009766.

XX 12-NOV-1991; 91US-00789913.

PR 17-JUL-1992; 92US-00916478.

XX (NEUR-) NEUREX CORP.

XX Miljanich GP, Bowersox SS, Fox JA, Valentino KL, Bitner RS;

PI Yamashiro DH;

XX WPI; 1993-182487/22.

XX Redn. of neuronal damage caused by ischaemia - by admin. of cpds. that  
 PT bind specifically to omega-conotoxin MVIIA binding sites.

XX Disclosure; Fig 1; 103pp; English.

XX Ischaemia-related neuronal damage in mammals is reduced by admin., 4-24  
 CC hr after onset of ischaemia, of a cpd. (I) which binds selectively to an  
 CC omega-conotoxin (OCT) MVIIA site in neuronal tissue. (I) has selectivity  
 CC at least 100 expressed as ratio of binding affinity for the MVIIA site to  
 CC that for the MVIIC site. (I) is one of the OCTs MVIIA, MVIIB, GVIA, GVIA  
 CC or RVIA or it is the cpd. SNX-207. (I) is esp. used to reduce neuronal  
 CC damage caused by stroke. By delaying admin. for some time (compare  
 CC US0501403 where cpds. are given within 1 hr of the onset of ischaemia) a  
 CC greater redn. in neuronal damage is achieved. (I) is admin. e.g. by  
 CC intracerebroventricular (ICV) injection at 0.1-20 microg/kg, but can also  
 CC be given i.v. (opt. after treatment with antihistamines to minimise redn.

CC in blood pressure caused by (I)). (I) is also at least as effective as  
 CC the specified conotoxins for (1) selective inhibition of N-type voltage-  
 CC gated Ca currents in neuronal tissue and (2) selective inhibition of N-  
 CC channel mediated neurotransmitter release in neuronal tissue. Primary  
 CC sequences of omega-conopeptides are given in AAR37752-62. Several analog  
 CC omega-conopeptides are given in AAR37763-76. (Updated on 25-MAR-2003 to  
 CC correct PN field.)  
 XX  
 SQ Sequence 25 AA;

Query Match 100.0%; Score 151; DB 2; Length 25;  
 Best Local Similarity 100.0%; Pred. No. 3.7e-10;  
 Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
 DB 1 CKGKGAKCSRLMYDCTGSCRSKGC 25

## RESULT 3

AAR32777  
 ID AAR32777 standard; peptide; 25 AA.

XX  
 AC AAR32777;

DT 28-JUN-1993 (first entry)

XX MVIIA omega conotoxin peptide.

XX OCT; neuronal damage reduction; ischemia; secondary damage; stroke.

XX Synthetic.

XX US5189020-A.

XX 23-FEB-1993.

XX 02-AUG-1990; 90US-00561766.

PR 22-NOV-1989; 89US-00440094.

XX (NEUR-) NEUREX CORP.

XX Miljanich GP, Bitner RS, Bowersox SS, Fox JA, Valentino KL;

PI Yamashiro DH, Tsubokawa M;

XX WPI; 1993-085564/10.

XX Reducing neuronal damage due to ischaemia - involves using omega  
 PT conotoxin peptide or fragment.

XX Disclosure; Fig 1; 32pp; English.

XX The sequence is that of the MVIIA omega conotoxin (OCT) peptide which can  
 CC bind to an OCT binding protein, inhibit voltage-gated calcium currents  
 CC selectively in neuronal tissue and inhibit neuronal transmitter release  
 CC selectively in neuronal tissue. These properties all occur within the  
 CC range of those of MVIIB, GVIA, RVIA, or pref. MVIIA and GVIA OCTs. The  
 CC peptide can be used in reducing or preventing both anatomical and  
 CC functional secondary damage related to ischemia, generally as associated  
 CC with stroke

XX Sequence 25 AA;

Query Match 100.0%; Score 151; DB 2; Length 25;  
 Best Local Similarity 100.0%; Pred. No. 3.7e-10;  
 Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
 DB 1 CKGKGAKCSRLMYDCTGSCRSKGC 25

RESULT 4  
 AAR76089  
 ID AAR76089 standard; peptide; 25 AA.  
 XX  
 AC AAR76089;  
 XX  
 DT 27-AUG-2003 (revised)  
 DT 25-MAR-2003 (revised)  
 DT 02-FEB-1996 (first entry)  
 XX  
 XX Omega conotoxin MWIIA peptide.  
 XX  
 XX Omega conotoxin; marine snail; Conus; voltage-gated Ca channel blocker;  
 KW synaptosome; membrane; fish electric organ; mammalian brain; ischaemia;  
 KW binding protein; binding affinity; stroke.  
 XX  
 OS Conus.  
 XX  
 XX Key Location/Qualifiers  
 FT Disulfide-bond 1. .16  
 FT Disulfide-bond 8. .20  
 FT Disulfide-bond 15. .25  
 FT Modified-site 25  
 FT /note= "amidated C-terminus"  
 XX  
 XX US5424218-A.  
 PN  
 XX  
 XX 13-JUN-1995.  
 PD  
 XX  
 XX 04-NOV-1993; 93US-00147714.  
 PF  
 XX  
 XX 22-NOV-1989; 89US-00440094.  
 PR  
 XX 02-AUG-1990; 90US-00561766.  
 PR  
 XX 23-MAR-1992; 92US-00855269.  
 PR  
 XX (NEUR-) NEUREX CORP.  
 PA  
 XX  
 XX Valentino KL, Bowersox SS, Bitner RS, Miljanich GP, Yamashiro DH;  
 PI Fox JA;  
 PI  
 XX  
 XX WPI; 1995-223694/29.  
 DR  
 XX  
 XX Identifying cpds. able to reduce neuronal damage caused by ischaemia - by  
 PT measuring their affinity to omega conotoxin MWIIA binding site and  
 PT ability e.g. to inhibit voltage gated calcium channels.  
 PT  
 XX  
 XX Disclosure; Fig 1; 31pp; English.  
 PS  
 XX The peptides AAR76089-95 are naturally occurring omega conotoxin (OCT)  
 CC peptides derived from marine snails of the Conus genus. The peptide  
 CC sequences were used to chemically synthesise the OCT peptide fragments  
 CC AAR76096-R76109. The OCT peptides act as voltage-gated Ca channel  
 CC blockers by binding to a 210 kD protein from synaptosomal membrane  
 CC preparations from fish electric organ or mammalian brains. The peptides  
 CC and their synthesised fragments can be used to screen for compounds that  
 CC bind to the OCT binding protein, by displacing a high affinity labelled  
 CC OCT, such as MWIIA, from a synaptosomal membrane preparation. The  
 CC compounds should have binding affinities and activities at least equal to  
 CC those of the natural peptides (Ki 0.44-324 nM). The screened compounds  
 CC are potentially useful in treating ischaemic conditions, esp. stroke, and  
 CC can reduce sec. anatomical and functional damage associated with those  
 CC conditions. (Updated on 25-MAR-2003 to correct PF field.) (Updated on 27-  
 CC AUG-2003 to correct OS field.)  
 XX  
 XX Sequence 25 AA;

Query Match 100.0%; Score 151; DB 2; Length 25;  
 Best Local Similarity 100.0%; Pred. No. 3.7e-10;  
 Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 CKGKAGKCSRLMYDCTGCSRGKC 25  
 DB 1 CKGKAGKCSRLMYDCTGCSRGKC 25

RESULT 5  
 AAW19544  
 ID AAW19544 standard; peptide; 25 AA.  
 XX  
 AC AAW19544;  
 XX  
 DT 27-AUG-2003 (revised)  
 DT 13-OCT-1997 (first entry)  
 XX  
 XX Natural omega-conopeptide MWIIA/SNX-111 used for pain relief.  
 XX  
 XX Conopeptide; cone snail; pain; analgesic; neuropathic; epidural;  
 KW N-type voltage-sensitive calcium channel; block; Conus.  
 XX  
 OS Conus.  
 XX  
 XX Key Location/Qualifiers  
 FT Disulfide-bond 1. .16  
 FT Disulfide-bond 8. .20  
 FT Disulfide-bond 15. .25  
 FT Modified-site 25  
 FT /note= "optionally amidated"  
 XX  
 XX WO9701351-A1.  
 PN  
 XX  
 XX 16-JAN-1997.  
 PD  
 XX  
 XX 26-JUN-1996; 96WO-US011041.  
 PF  
 XX  
 XX 27-JUN-1995; 95US-00496847.  
 PR  
 XX 08-MAR-1996; 96US-00613400.  
 PR  
 XX (NEUR-) NEUREX CORP.  
 PA  
 XX  
 XX Amstutz GA, Bowersox SS, Gohil K, Adriaenssens PI, Kristipati R;  
 PI Gadbois T, Pettus MR, Luther RR;  
 PI  
 XX  
 XX WPI; 1997-100012/09.  
 DR  
 XX  
 XX Stable omega conopeptide compositions - for producing analgesia and for  
 PT inhibiting progression of neuropathic pain disorders.  
 PT  
 XX  
 XX Claim 3; Fig 1, Fig 3; 47pp; English.  
 PS  
 XX  
 XX AAW19544-W19553 are naturally occurring omega conopeptides (OCs) isolated  
 CC from Conus sp. (cone snails). The peptides and their analogues are used  
 CC as analgesics acting by blocking N-type voltage-sensitive calcium  
 CC channels. The OCs can be used to treat neuropathic pain as a result of  
 CC e.g. insult to the spinal cord or peripheral nerves, cancer, bone  
 CC degenerative diseases, AIDS, reflex sympathetic dystrophy, herpes zoster  
 CC neuropathy, diabetic neuropathy, hyperaesthesia, allodynia or  
 CC hyperalgesia. The OCs are preferably administered in a medicament via an  
 CC epidural route in a continuous infusion or sustained release formulation.  
 CC The OCs can provide pain relief when administered epidurally in the  
 CC absence of a permeation enhancer, at doses that are comparable to  
 CC effective analgesic doses using intrathecal administration. OC  
 CC formulations comprising an OC and a carboxylic acid buffer anti-oxidant.  
 CC They also confer stability to solutions containing them for prolonged  
 CC treatment methods and long-term storage. (Updated on 27-AUG-2003 to  
 CC correct OS field.)  
 XX  
 XX Sequence 25 AA;

Query Match 100.0%; Score 151; DB 2; Length 25;  
 Best Local Similarity 100.0%; Pred. No. 3.7e-10;  
 Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 CKGKAGKCSRLMYDCTGCSRGKC 25  
 DB 1 CKGKAGKCSRLMYDCTGCSRGKC 25

RESULT 6  
AAW19569  
ID AAW19569 standard; peptide; 25 AA.  
XX  
AC AAW19569;  
XX  
DT 14-OCT-1997 (first entry)  
XX  
DE SNX-279, omega conopeptide derivative used for pain relief.  
XX  
KW Conopeptide; cone snail; pain; analgesic; neuropathy; epidural;  
KW N-type voltage-sensitive calcium channel; block; Conus.  
XX  
OS Synthetic.

XX  
FH Key Location/Qualifiers  
FT Disulfide-bond 1. .16  
FT Disulfide-bond 8. .20  
FT Misc-difference 12  
FT /label= Met (O)  
FT /note= "sulphoxymethionine"  
FT Disulfide-bond 15. .25  
FT Modified-site 25  
FT /note= "amidated"

XX WO9701351-A1.  
XX  
PD 16-JAN-1997.  
XX  
XX 26-JUN-1996; 96WO-US011041.  
XX  
PR 27-JUN-1995; 95US-00496847.  
PR 08-MAR-1996; 96US-00613400.  
XX  
PA (NEUR-) NEUREX CORP.  
XX  
PI Amstutz GA, Bowersox SS, Gohil K, Adriaenssens PI, Kristipati R;  
PI Gadbois T, Pettus WR, Luther RR;  
XX  
DR WPI; 1997-100012/09.  
XX  
PT Stable omega conopeptide compositions - for producing analgesia and for  
PT inhibiting progression of neuropathic pain disorders.  
XX  
PS Claim 3; Fig 3; 47pp; English.

XX  
CC AAW19555-W19572 are omega conopeptides (OCs) derived from natural  
CC peptides from Conus sp. (cone snails). The peptides and their analogues  
CC are used as analgesics acting by blocking N-type voltage-sensitive  
CC calcium channels. The OCs can be used to treat neuropathic pain as a  
CC result of e.g. insult to the spinal cord or peripheral nerves, cancer,  
CC bone degenerative diseases, AIDS, reflex sympathetic dystrophy, herpes  
CC zoster neuropathy, diabetic neuropathy, hyperesthesia, allodynia or  
CC hyperalgesia. The OCs are preferably administered in a medicament via an  
CC epidural route in a continuous infusion or sustained release formulation.  
CC The OCs can provide pain relief when administered epidurally in the  
CC absence of a permeation enhancer, at doses that are comparable to  
CC effective analgesic doses using intrathecal administration. OC  
CC formulations comprising an OC and a carboxylic acid buffer anti-oxidant.  
CC They also confer stability to solutions containing them for prolonged  
CC treatment methods and long-term storage

XX Sequence 25 AA;  
Query Match 100.0%; Score 151; DB 2; Length 25;  
Best Local Similarity 100.0%; Pred. No. 3.7e-10;  
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
DB 1 CKGKGAKCSRLMYDCTGSCRSKGC 25

RESULT 7  
AAW12967  
ID AAW12967 standard; peptide; 25 AA.  
XX  
AC AAW12967;  
XX  
DT 25-MAR-2003 (revised)  
DT 22-APR-1997 (first entry)  
XX  
DE Omega conopeptide SNX-111.  
XX  
KW Omega conopeptide; analgesic; treatment; neuropathic pain; inhibition;  
KW neuronal damage; schizophrenia; tardive dyskinesia; analgesia;  
KW acute dystonic reactions; inflammation; epilepsy.  
XX  
OS Synthetic.  
XX  
PN US5587454-A.  
XX  
PD 24-DEC-1996.  
XX  
PF 15-APR-1993; 93US-00049794.  
XX  
PR 30-DEC-1991; 91US-00814759.  
PR 30-DEC-1992; 92WO-US011349.  
XX  
PA (NEUR-) NEUREX CORP.  
XX  
PI Gohil KC, Miljanich GP, Valentino KL, Justice A, Singh T;  
XX  
XX WPI; 1997-064830/06.  
XX  
PT Omega conopeptide(s) - useful as analgesics, esp. for treating  
PT neuropathic pain.  
XX  
PS Example 1; Col 39-40; 58pp; English.  
XX  
CC The present peptide is an omega conopeptide, useful as an analgesic,  
CC especially for treating neuropathic pain. The peptide, which can be  
CC prepared by solid phase synthesis, can also be used to inhibit neuronal  
CC damage and treat schizophrenia, tardive dyskinesia, acute dystonic  
CC reactions, inflammation and epilepsy. In a rat paw formalin test, the  
CC peptide had an ED50 of 0.011 microg in phase 1, and 0.011 microg in phase  
CC 2 (by intrathecal administration). (Updated on 25-MAR-2003 to correct PF  
CC field.)  
XX  
SQ Sequence 25 AA;  
Query Match 100.0%; Score 151; DB 2; Length 25;  
Best Local Similarity 100.0%; Pred. No. 3.7e-10;  
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
DB 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
RESULT 8  
AAW72605  
ID AAW72605 standard; peptide; 25 AA.  
XX  
AC AAW72605;  
XX  
XX 27-AUG-2003 (revised)  
DT 06-JAN-1999 (first entry)  
XX  
DE Conus genus natural omega-conopeptide MWIIA/SNX-111.  
XX  
KW Conus genus; marine snail; cone snail; omega-conopeptide; analgesia;  
KW nociceptive pain; neuropathic pain; neuronal tissue; conotoxin;  
KW inflammation; schizophrenia; tardive dyskinesia; acute dystonic reaction;  
KW rheumatoid arthritis; epilepsy.

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XX OS Conus.
XX PF US5824645-A.
XX PN 20-OCT-1998.
XX PD 01-NOV-1996; 96US-00742774.
XX PF 30-DEC-1991; 91US-00814759.
XX PR 15-APR-1993; 93US-00049794.
XX PR 03-JUL-1996; 96US-00675354.
XX PA (NEUR-) NEUREX CORP.
XX PI Miljanich GP, Valentino KL, Gohil KC, Justice A, Singh T;
XX WPI; 1998-582596/49.
XX Treatment of inflammation, comprises administration of omega-conopeptide
PT - effective to block voltage-gated calcium channels, bind with high
PT affinity to omega-conopeptide binding site, and inhibit neuro-transmitter
PT release.
XX PS Disclosure; Fig 1; 59pp; English.
XX CC A method has been developed for the treatment of inflammation in a
CC subject. The method comprises administration of an omega-conopeptide
CC effective to: (i) block voltage-gated calcium channels; (ii) bind with
CC high affinity to an omega-conopeptide binding site; and (iii) inhibit
CC neurotransmitter release from nervous tissue. The method is used to treat
CC inflammation and associated pain. The treatment can also be used to
CC produce analgesia (especially in subjects experiencing neuropathic pain);
CC and to treat schizophrenia, tardive dyskinesia and acute dystonic
CC reactions, rheumatoid arthritis, and epilepsy. The present sequence
CC represents a natural omega-conopeptide. Omega-conopeptides are components
CC of peptide toxins produced by marine snails of the genus Conus, and which
CC act as calcium channel blockers. (Updated on 27-AUG-2003 to correct OS
CC field.)
XX SQ Sequence 25 AA;

Query Match 100.0%; Score 151; DB 2; Length 25;
Best Local Similarity 100.0%; Pred. No. 3.7e-10;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25
Db 1 CKGKGAKCSRLMYDCTGSCRSKGC 25

RESULT 9
AAW95564
ID AAW95564 standard; protein; 25 AA.
XX AC AAW95564;
XX DT 29-MAR-1999 (first entry)
XX DE Omega-conopeptide MW11A/SNX-111.
XX KW Omega-conopeptide; peptide toxin; snail; calcium channel blocker;
XX analgesia; guinea pig ileum; omega-conotoxin; pain; neuropathic.
XX OS Synthetic.
XX OS Conus sp.
XX FH Key Location/Qualifiers
XX FT Modified-site 25
XX FT /note= "C-terminal amide"
XX PN US5859186-A.
XX PA (ALCO-) ALCON LAB INC.

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PD 12-JAN-1999.
XX PF 03-JUL-1996; 96US-00675354.
XX PR 30-DEC-1991; 91US-00814759.
XX PR 15-APR-1993; 93US-00049794.
XX PA (NEUR-) NEUREX CORP.
XX PI Miljanich GP, Gohil KC, Valentino KL, Justice A, Singh T;
XX WPI; 1999-120002/10.
XX Production of analgesia in mammal - by administration of omega cono-
PT peptide(s).
XX PS Claim 3; Fig 1; 59pp; English.
XX CC Sequences AAW95564-573 represent primary sequences of natural omega-
CC conopeptides. Omega-conopeptides are components of peptide toxins
CC produced by marine snails of the genus Conus, and which act as calcium
CC channel blockers. The invention relates to a method of producing
CC analgesia in a mammal that comprises administering an omega conopeptide
CC having activities in (a) inhibiting electrically stimulated contraction
CC of guinea pig ileum and (b) selectively binding to omega conopeptide
CC MW11A binding sites in neuronal tissue, where these activities are within
CC the ranges of those of omega-conotoxins MW11A and TV1A. The method is
CC used for treating chronic pain, especially neuropathic pain. The present
CC sequence is a specifically claimed example of an omega-conopeptide that
CC can be used in the method of the invention
XX SQ Sequence 25 AA;

Query Match 100.0%; Score 151; DB 2; Length 25;
Best Local Similarity 100.0%; Pred. No. 3.7e-10;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25
Db 1 CKGKGAKCSRLMYDCTGSCRSKGC 25

RESULT 10
AAW95564
ID AAW95564 standard; peptide; 25 AA.
XX AC AAW95564;
XX DT 20-DEC-1999 (first entry)
XX DE Omega-conotoxin OCT MW11A.
XX KW Calcium channel; neuron; retina; optic nerve; trauma; ischaemia; vision;
XX KW prevention.
XX OS Conus sp.
XX FH Key Location/Qualifiers
XX FT Disulfide-bond 1..16
XX FT Disulfide-bond 8..20
XX FT Disulfide-bond 15..25
XX FT Misc-difference 25
XX FT /note= "Optionally contains C-terminal amide"
XX PN US5965534-A.
XX PD 12-OCT-1999.
XX PF 13-MAR-1998; 98US-00039168.
XX PR 22-NOV-1995; 95US-00562142.
XX PA (ALCO-) ALCON LAB INC.

```

XX Hellberg M, Pang I, Kapin M;  
 XX WPI; 1999-579926/49.  
 XX  
 XX Treatment or prevention of retinal or optic nerve head damage comprises  
 XX administration of an omega-conotoxin derivative.  
 XX  
 XX Claim 2; Col 3-4; 7pp; English.  
 XX  
 XX This sequence represents omega-conotoxin OCT MVIIA. Omega-conotoxins  
 XX selectively block N-type calcium channels responsible for calcium influx  
 XX in neurons. Acute retinal or optic nerve damage, which can result in the  
 XX loss of vision, is caused by acute trauma and pathological events such as  
 XX ischaemia, hypoxia or oedema. The release of excitatory amino acids is  
 XX implicated in ischaemia-related neuronal and retinal damage, with  
 XX excitatory amino acid release leading to excessive stimulation of post-  
 XX synaptic excitatory amino acid receptors, which can result in cell  
 XX injury. The release of such excitatory amino acids from presynaptic nerve  
 XX terminals is dependent upon an elevation of calcium in the nerve  
 XX terminal. This presynaptic calcium influx is mediated by the N-type  
 XX calcium channels that are inhibited by omega-conotoxins. Intracellular  
 XX administration of at least one omega-conotoxin could be used for the  
 XX treatment or prevention of retinal or optic nerve head damage resulting  
 XX from acute traumatic or acute ischaemic events  
 XX  
 XX Sequence 25 AA;  
 XX  
 XX Query Match 100.0%; Score 151; DB 2; Length 25;  
 XX Best Local Similarity 100.0%; Pred. No. 3.7e-10;  
 XX Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
 DB 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
 XX  
 XX RESULT 11  
 XX AAY56473  
 XX ID AAY56473 standard; peptide; 25 AA.  
 XX AC AAY56473;  
 XX DT 16-FEB-2000 (first entry)  
 XX DE Natural omega conopeptide MVIIA/SNX-111.  
 XX Omega conopeptide; analgesic; nociceptive; neuropathic; pain; conotoxin;  
 XX marine snail; peptide toxin; inflammation; binding;  
 XX voltage-gated calcium channel; inhibition; norepinephrine; noradrenaline;  
 XX anti-inflammatory.  
 XX  
 XX Conus sp.  
 XX US5994305-A.  
 XX PD 30-NOV-1999.  
 XX PF 21-AUG-1998; 98US-00138439.  
 XX PR 30-DEC-1991; 91US-00814759.  
 XX PR 15-APR-1993; 93US-00049794.  
 XX PR 03-JUL-1996; 96US-00675354.  
 XX PR 01-NOV-1996; 96US-00742774.  
 XX (ELAN-) ELAN PHARM INC.  
 XX Justice A, Singh T, Valentino KL, Miljanich GP, Gohil KC;  
 XX WPI; 2000-038270/03.  
 XX Measuring the activity of test compounds in blocking voltage-gated  
 XX calcium channels, binding to the omega conopeptide binding site and

PT inhibiting norepinephrine (noradrenaline) release for treating  
 PT inflammation.  
 XX Disclosure; Fig 1; 47pp; English.  
 XX  
 XX A method has been developed of selecting a test compound for treating  
 XX inflammation. The method comprises measuring the activity of the test  
 XX compound in blocking voltage-gated calcium channels, binding to the omega  
 XX conopeptide binding site and inhibiting norepinephrine (noradrenaline)  
 XX release from nervous tissue. The method is useful for selecting compounds  
 XX for treating inflammation. The selected compounds are capable of  
 XX producing analgesia in a mammalian subject with chronic or intractable  
 XX pain. Analgesia caused by selected compounds may reduce the reliance on  
 XX opioid analgesic agents of the prior art which cause dependency and  
 XX tolerance, requiring potentially dangerous increases in opioid doses to  
 XX achieve the analgesic effect. The present sequence represents an omega  
 XX conopeptide given in the present invention  
 XX  
 XX Sequence 25 AA;  
 XX  
 XX Query Match 100.0%; Score 151; DB 3; Length 25;  
 XX Best Local Similarity 100.0%; Pred. No. 3.7e-10;  
 XX Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
 DB 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
 XX  
 XX RESULT 12  
 XX AAY43714  
 XX ID AAY43714 standard; peptide; 25 AA.  
 XX AC AAY43714;  
 XX DT 11-FEB-2000 (first entry)  
 XX DE Amino acid sequence of an omega-conotoxin MVIIA(SNX-III).  
 XX Omega-conotoxin; venom; predatory marine snail; N-type calcium channel;  
 XX neuronal damage reduction; ischemia; analgesia; opiate analgesia;  
 XX schizophrenia; stimulant induced psychosis; hypertension; inflammation;  
 XX bronchotension; neuropathic pain; voltage sensitive calcium channel.  
 XX  
 XX Conus magus.  
 XX OS  
 XX WO9954350-A1.  
 XX PD 28-OCT-1999.  
 XX PF 16-APR-1999; 99WO-AU000288.  
 XX PR 16-APR-1998; 98AU-00002989.  
 XX PR 01-FEB-1999; 99AU-00008419.  
 XX (UYQU ) UNIV QUEENSLAND.  
 XX PI Drinkwater RD, Lewis RJ, Alewood PF, Nielsen KJ;  
 XX WPI; 2000-013226/01.  
 XX Novel peptides used for the treatment of disorders and diseases where  
 XX blockage of the N-type calcium channels is required.  
 XX Disclosure; Page 12; 81pp; English.  
 XX  
 XX The present sequence represents an omega-conotoxin. Omega-conotoxins are  
 XX isolated from venoms of predatory marine snails, and have a selectivity  
 XX for N-type calcium channels over P/Q type channels, and so block N-type  
 XX calcium channels. The omega-conotoxins of the invention can be used in  
 XX any disease or disorder where blockage of N-type calcium channels is  
 XX required, e.g. in the reduction of neuronal damage following ischemia,  
 XX production of analgesia, or enhancement of opiate analgesia, in the



CC treatment of schizophrenia, stimulant induced psychoses, hypertension,  
 CC inflammation, and diseases which cause bronchotension, and also in the  
 CC inhibition of progression of neuropathic pain. They can also be used in a  
 CC screen to identify compounds with activity at N-type voltage sensitive  
 CC calcium channels  
 XX  
 SQ Sequence 25 AA;

Query Match 100.0%; Score 151; DB 3; Length 25;  
 Best Local Similarity 100.0%; Pred. No. 3.7e-10;  
 Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
 |||||  
 DB 1 CKGKGAKCSRLMYDCTGSCRSKGC 25

RESULT 13  
 AAB14352  
 ID AAB14352 standard; peptide; 25 AA.

XX AC AAB14352;

XX DT 06-DEC-2000 (first entry)

XX DE Omega-conopeptide MVIIA/SNX-111.

XX KW Marine snail; omega-conopeptide; calcium channel blocker; MVIIA; SNX-111;  
 KW toxin; analgesic; anti-inflammatory; anticonvulsant; neuroleptic;  
 KW norepinephrine release inhibitor; schizophrenia; tardive dyskinesia;  
 KW acute dystonic reaction; inflammation; epilepsy.

XX OS Conus sp.

XX FH Key Location/Qualifiers

FT Disulfide-bond 1..16

FT Disulfide-bond 8..20

FT Disulfide-bond 15..25

FT Modified-site 25

FT /note= "C-terminal amide"

XX US6087091-A.

XX PD 11-JUL-2000.

XX PF 23-APR-1999; 99US-00298017.

XX PR 30-DEC-1991; 91US-00814759.

PR 15-APR-1993; 93US-00049794.

PR 03-JUL-1996; 96US-00675354.

PR 01-NOV-1996; 96US-00742774.

PR 21-AUG-1998; 98US-00138439.

XX (ELAN-) ELAN PHARM INC.

XX PI Singh T, Gohil KC, Valentino KL, Miljanich GP, Justice A;

XX WPI; 2000-490177/43.

XX PT Selecting a compound for producing analgesia involves measuring activity  
 of test compound in blocking voltage-gated calcium channels, binding to  
 omega conopeptide binding site and inhibiting norepinephrine release.

PS Example 1; Fig 1; 58pp; English.

XX CC The present sequence is an omega-conopeptide from marine snails of the  
 CC genus Conus. Omega-conopeptides are components of peptide toxins produced  
 CC by the cone snails, and which act as calcium channel blockers. Natural  
 CC omega-conopeptides and their derivatives may be useful for producing  
 CC analgesia in nociceptive and neuropathic pain. The peptides bind to omega  
 CC -conopeptide binding sites, which are present mainly in neuronal tissue,  
 CC and inhibit norepinephrine release from nervous tissue. Conopeptides such  
 CC as MVIIA and TVIA are effective as therapeutic agents for treating

CC neurogenic conditions such as schizophrenia, tardive dyskinesia and acute  
 CC dystonic reactions, inflammation and epilepsy  
 XX  
 SQ Sequence 25 AA;

Query Match 100.0%; Score 151; DB 3; Length 25;  
 Best Local Similarity 100.0%; Pred. No. 3.7e-10;  
 Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
 |||||  
 DB 1 CKGKGAKCSRLMYDCTGSCRSKGC 25

RESULT 14  
 AAB92219  
 ID AAB92219 standard; peptide; 25 AA.

XX AC AAB92219;

XX DT 22-JUN-2001 (first entry)

XX DE Toxin peptide SEQ ID NO:1395.

XX KW Protection; endogenous therapeutic peptide; peptidase; conjugation;

KW blood component; modification; succinimidy; maleimido group; amino;

KW hydroxyl; thiol; hormone; growth factor; neurotransmitter.

XX OS Homo sapiens.

XX OS Synthetic.

XX PN WO200069900-A2.

XX PD 23-NOV-2000.

XX PF 17-MAY-2000; 2000WO-US013576.

XX PR 17-MAY-1999; 99US-0134406P.

PR 10-SEP-1999; 99US-0153406P.

PR 15-OCT-1999; 99US-0159783P.

XX (CONJ-) CONJUCHEM INC.

XX PI Bridon DP, Ezrin AM, Milner PG, Holmes DL, Thibaudeau K;

XX WPI; 2001-112059/12.

XX PT Modifying and attaching therapeutic peptides to albumin prevents  
 peptidase degradation, useful for increasing length of in vivo activity.

PS Disclosure; Page 653; 733pp; English.

XX CC The present invention describes a modified therapeutic peptide (I)  
 CC comprising a therapeutically active amino acid region (III) and a  
 CC reactive group (II) (e.g. succinimidy and maleimido groups) attached to  
 CC a less therapeutically active amino acid region (IV), which covalently  
 CC bonds with amino/hydroxyl/thiol groups on blood components to form a  
 CC peptidase stabilised therapeutic peptide composed of 3-50 amino acids.  
 CC (I) are useful for modifying therapeutic peptides e.g. hormones, growth  
 CC factors and neurotransmitters, to protect them from peptidase activity in  
 CC vivo for the treatment of various disorders. Endogenous therapeutic  
 CC peptides are not suitable as drug candidates as they require frequent  
 CC administration due to rapid degradation by peptidases in the body.  
 CC Modifying and attaching therapeutic peptides to albumin prevents or  
 CC reduces the action of peptidases to increase length of activity (half  
 CC life) and specificity as bonding to large molecules decreases  
 CC intracellular uptake and interference with physiological processes.  
 CC AAB90829 to AAB92441 represent peptides which can be used in the  
 CC exemplification of the present invention

XX SQ Sequence 25 AA;

Query Match 100.0%; Score 151; DB 4; Length 25;

Best Local Similarity 100.0%; Pred. NO. 3.7e-10; DB 4; Length 25;  
 Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
 |||||  
 Db 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
 |||||

Query Match 100.0%; Score 151; DB 4; Length 25;  
 Best Local Similarity 100.0%; Pred. NO. 3.7e-10; DB 4; Length 25;  
 Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
 |||||  
 Db 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
 |||||

Search completed: March 23, 2005, 00:03:02  
 Job time : 82.8581 secs

RESULT 15  
 AAB19442  
 ID AAB19442 standard; peptide; 25 AA.  
 XX AC AAB19442;  
 XX DT 06-MAR-2001 (first entry)  
 XX DE Primary sequence of a natural omega-conopeptide MVIIA/SNX-111.  
 XX KW Omega-conopeptide; voltage-gated calcium channel inhibitor; analgesic;  
 KW peptide toxin; opiate; pain; neuronal damage; ischemic condition;  
 KW schizophrenia; tardive dyskinesia; acute dystonic reaction; inflammation;  
 KW epilepsy.  
 XX OS Conus sp.  
 XX FH Key Location/Qualifiers  
 FT Disulfide-bond 1..16  
 FT Disulfide-bond 8..20  
 FT Disulfide-bond 15..25  
 FT Modified-site 25  
 FT /note= "amidated C-terminal"  
 XX US6136786-A.  
 XX 24-OCT-2000.  
 XX 09-SEP-1999; 99US-00392979.  
 XX 30-DEC-1991; 91US-00814759.  
 XX 15-APR-1993; 93US-00049794.  
 XX 23-JUN-1993; 93US-00081863.  
 XX 03-JUL-1996; 96US-00675354.  
 XX 01-NOV-1996; 96US-00742774.  
 XX 21-AUG-1998; 98US-00138439.  
 XX 23-APR-1999; 99US-00298017.  
 XX (ELAN-) ELAN PHARM INC.  
 XX Singh T, Gohil KC, Valentino KL, Miljanich GP, Justice A;  
 WPI; 2001-030946/04.  
 XX Enhancing analgesia produced by opiates by administering an omega-  
 PT conopeptide that inhibits electrically stimulated contraction of guinea  
 PT pig ileum and binds to omega-conopeptide MVIIA binding sites in neuronal  
 PT tissues.  
 XX Disclosure; Fig 1; 58pp; English.  
 XX The present sequence represents an omega-conopeptide. Omega-conopeptides  
 CC are components of peptide toxins which act as voltage-gated calcium  
 CC channel inhibitors. The peptides are used to enhance the analgesic effect  
 CC produced by an opiate in a mammalian subject. The method comprises  
 CC administering to the subject an omega-conopeptide which is able to  
 CC inhibit electrically stimulated contraction of the guinea pig ileum and  
 CC bind to omega-conopeptide MVIIA binding sites present in neuronal tissue.  
 CC Omega-conopeptides are useful for enhancing the analgesic effect produced  
 CC by an opiate. Omega-conopeptides may also be used in the treatment of  
 CC pain, in reducing neuronal damage related to an ischemic condition in  
 CC mammals, and in treating schizophrenia, tardive dyskinesia and acute  
 CC dystonic reactions, inflammation and epilepsy  
 XX Sequence 25 AA;

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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:44:17 ; Search time 80.8581 Seconds  
(without alignments)  
119.580 Million cell updates/sec

Title: US-09-787-082A-11  
Perfect score: 147  
Sequence: 1 CKGKGXCSRLMYDCTGSCRSKGC 25

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0  
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Maximum Match 100%  
Listing first 45 summaries

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2: Geneseqp1990s:\*  
3: Geneseqp2000s:\*  
4: Geneseqp2001s:\*  
5: Geneseqp2002s:\*  
6: Geneseqp2003as:\*  
7: Geneseqp2003bs:\*  
8: Geneseqp2004s:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	146	99.3	25	2 AAR39626	Aar39626 SNX-200.
2	146	99.3	25	2 AAR37771	Aar37771 SNX-200.
3	146	99.3	25	2 AAW19564	Aaw19564 SNX-200.
4	146	99.3	25	3 AAY56492	Aay56492 Analogue
5	145	98.6	25	2 AAR39608	Aar39608 WVIIA/SNX
6	145	98.6	25	2 AAR37752	Aar37752 WVIIA/SNX
7	145	98.6	25	2 AAR32777	Aar32777 WVIIA ome
8	145	98.6	25	2 AAR76089	Aar76089 Omega con
9	145	98.6	25	2 AAW19544	Aaw19544 Natural o
10	145	98.6	25	2 AAW19569	Aaw19569 SNX-279.
11	145	98.6	25	2 AAW12967	Aaw12967 Omega con
12	145	98.6	25	2 AAW2605	Aaw2605 Conus gen
13	145	98.6	25	2 AAW95564	Aaw95564 Omega-con
14	145	98.6	25	2 AAY42335	Aay42335 Omega-con
15	145	98.6	25	3 AAY56473	Aay56473 Natural o
16	145	98.6	25	3 AAY43714	Aay43714 Amino aci
17	145	98.6	25	3 AAB14352	Aab14352 Omega-con
18	145	98.6	25	4 AAB92219	Aab92219 Toxin pep
19	145	98.6	25	4 AAB19442	Aab19442 Primary s
20	145	98.6	25	4 AAB97046	Aab97046 Omega-con
21	145	98.6	25	5 AAO15124	Aao15124 Cone snail
22	145	98.6	26	2 AAR12546	Aar12546 Omega con
23	145	98.6	26	2 AAR37765	Aar37765 SNX-193.
24	145	98.6	26	2 AAW19557	Aaw19557 SNX-193.
25	145	98.6	26	3 AAY56485	Aay56485 Analogue

26	145	98.6	27	2 AAR13266	Aar13266 Omega con
27	145	98.6	27	2 AAR13265	Aar13265 Omega con
28	145	98.6	27	2 AAR37768	Aar37768 SNX-196.
29	145	98.6	27	2 AAR37769	Aar37769 SNX-197.
30	145	98.6	27	2 AAW19561	Aaw19561 SNX-197.
31	145	98.6	27	2 AAW19560	Aaw19560 SNX-196.
32	145	98.6	27	3 AAY56488	Aay56488 Analogue
33	145	98.6	27	3 AAY56489	Aay56489 Analogue
34	145	98.6	29	3 AAY84655	Aay84655 Amino aci
35	145	98.6	32	3 AAY84656	Aay84656 Amino aci
36	145	98.6	32	3 AAY84654	Aay84654 Amino aci
37	142	96.6	25	2 AAR12547	Aar12547 Omega con
38	142	96.6	25	4 AAB97043	Aab97043 Omega-con
39	141	95.9	25	4 AAB97044	Aab97044 Omega-con
40	141	95.9	25	4 AAB97045	Aab97045 Omega-con
41	140	95.2	25	2 AAW12983	Aaw12983 Omega con
42	140	95.2	25	2 AAW72623	Aaw72623 Conus gen
43	140	95.2	25	2 AAW95582	Aaw95582 Analog om
44	140	95.2	25	3 AAB14368	Aab14368 Omega-con
45	140	95.2	25	4 AAB19460	Aab19460 Sequence

## ALIGNMENTS

RESULT 1  
AAR39626  
ID AAR39626 standard; peptide; 25 AA.  
XX  
AC AAR39626;  
XX  
DT 25-MAR-2003 (revised)  
DT 20-DEC-1993 (first entry)  
XX  
DE SNX-200.  
XX  
KW Omega conopeptide; OCT; analgesia; inhibition; voltage-gated;  
KW calcium channel; neurone; contraction; guinea pig; ileum; MVIIA;  
KW binding site; toxin; marine; snail; Conus; opiod; chronic pain;  
KW narcotics.  
XX  
OS Synthetic.  
XX  
FH Key Location/Qualifiers  
FT Disulfide-bond 1..16  
FT Disulfide-bond 8..20  
FT Disulfide-bond 15..25  
FT Modified-site 25 /note= "Amidated C-terminal"  
FT

WO9313128-A1.

08-JUL-1993.

30-DEC-1992; 92WO-US011349.

30-DEC-1991; 91US-00814759.

(NEUR-) NEUREX CORP.

Justice A, Singh T, Gohil K, Valentino KL, Miljanich GP;

WPI; 1993-227270/28.

Use of omega-cono-peptide(s) which selectively inhibit voltage-gated calcium channels - to induce analgesia, enhance opiate analgesics, treat pain etc.

Claim 1; Fig 2; 90pp; English.

The sequences given in AAR39608-30 are omega conopeptides (OCTs) and derivatives of these, which may be used to produce analgesia in a mammal. These OCTs inhibit voltage-gated calcium channels selectively in neuronal

CC tissue. This is shown by the peptides ability to stimulate contraction in  
 CC guinea pig ileum and to bind to OCT MWIIA binding sites present in  
 CC neuronal tissue. OCTs are components of peptide toxins derived from  
 CC marine snails of the genus Conus, and act as calcium channel blockers.  
 CC These OCTs may be used to replace opioids in the treatment of chronic pain  
 CC or to reduce the opioid dosage required. This helps to reduce dependence  
 CC on and tolerance to opioid narcotics. (Updated on 25-MAR-2003 to correct  
 CC PN field.)

XX Sequence 25 AA;

Query Match 99.3%; Score 146; DB 2; Length 25;  
 Best Local Similarity 96.0%; Pred. No. 1.5e-09;  
 Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKKGAGACSRMLMYDCTGSCRSKGC 25  
 ||||| ||||| ||||| ||||| |||||  
 DB 1 CKKGAGACSRMLMYDCTGSCRSKGC 25

#### RESULT 2

AAR37771  
 ID AAR37771 standard; peptide; 25 AA.

XX AC AAR37771;

XX 25-MAR-2003 (revised)

DT 08-SEP-1993 (first entry)

XX SNX-200.

XX Ischaemia; neuronal; omega-conotoxin; OCT; MWIIA; MWIIC; MWIIB;  
 KW GVIA; GVIIA; RVIA; SVIA; TVIA; SVIB; SNX-207; stroke; delayed treatment;  
 KW antihistamine; blood pressure; N-type voltage-gated Ca currents;  
 KW N-channel mediated neurotransmitter release.

XX Synthetic.

Key Location/Qualifiers

FT Disulfide-bond 1..16

FT Disulfide-bond 8..20

FT Disulfide-bond 15..25

XX WO9310145-A1.

XX 27-MAY-1993.

XX 12-NOV-1992; 92WO-US009766.

XX 12-NOV-1991; 91US-00789913.

PR 17-JUL-1992; 92US-00916478.

XX (NEUR-) NEUREX CORP.

XX Millanich GP, Bowersox SS, Fox JA, Valentino KL, Bitner RS;

PI Yamashiro DH;

XX WPI; 1993-182487/22.

XX Redn. of neuronal damage caused by ischaemia - by admin. of cpds. that  
 PT bind specifically to omega-conotoxin MWIIA binding sites.

XX Disclosure; Fig 2; 103pp; English.

XX The C-terminal is amidated. Ischaemia-related neuronal damage in mammals  
 CC is reduced by admin., 4-24 hr after onset of ischaemia, of a cpd. (I)  
 CC which binds selectively to an omega-conotoxin (OCT) MWIIA site in  
 CC neuronal tissue. (I) has selectivity at least 100 expressed as ratio of  
 CC binding affinity for the MWIIA site to that for the MWIIC site. (I) is  
 CC one of the OCTs MWIIA, MWIIB, GVIA, GVIIA or RVIA or it is the cpd. SNX-  
 CC 207. (I) is esp. used to reduce neuronal damage caused by stroke. By  
 CC delaying admin. for some time (compare US5051403 where cpds. are given  
 CC within 1 hr of the onset of ischaemia) a greater redn. in neuronal damage

CC is achieved. (I) is admin. e.g. by intracerebroventricular (ICV)  
 CC injection at 0.1-20 microg/kg, but can also be given i.v. (opt. after  
 CC treatment with antihistamines to minimise redn. in blood pressure caused  
 CC by (I)). (I) is also at least as effective as the specified conotoxins  
 CC for (1) selective inhibition of N-type voltage-gated Ca currents in  
 CC neuronal tissue and (2) selective inhibition of N-channel mediated  
 CC neurotransmitter release in neuronal tissue. Primary sequences of omega-  
 CC conopeptides are given in AAR37752-62. Several analog omega-conopeptides  
 CC are given in AAR37763-76. (Updated on 25-MAR-2003 to correct PN field.)

XX Sequence 25 AA;

Query Match 99.3%; Score 146; DB 2; Length 25;  
 Best Local Similarity 96.0%; Pred. No. 1.5e-09;  
 Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKKGAGACSRMLMYDCTGSCRSKGC 25  
 ||||| ||||| ||||| ||||| |||||  
 DB 1 CKKGAGACSRMLMYDCTGSCRSKGC 25

#### RESULT 3

AAM19564

ID AAM19564 standard; peptide; 25 AA.

XX AC AAM19564;

XX 14-OCT-1997 (first entry)

XX SNX-200, omega conopeptide derivative used for pain relief.

XX Conopeptide; cone snail; pain; analgesic; neuropathy; epidural;

KW N-type voltage-sensitive calcium channel; block; Conus.

XX Synthetic.

Key Location/Qualifiers

FT Disulfide-bond 1..16

FT Disulfide-bond 8..20

FT Disulfide-bond 15..25

FT Modified-site 25

XX /note= "amidated"

XX WO9701351-A1.

XX 16-JAN-1997.

XX 26-JUN-1996; 96WO-US011041.

XX 27-JUN-1995; 95US-00496847.

PR 08-MAR-1996; 96US-00613400.

XX (NEUR-) NEUREX CORP.

XX Amstutz GA, Bowersox SS, Gohil K, Adriaenssens PI, Kristipati R;

PI Gadbois T, Pettus WR, Luther RR;

XX WPI; 1997-100012/09.

XX Stable omega conopeptide compositions - for producing analgesia and for  
 PT inhibiting progression of neuropathic pain disorders.

XX Disclosure; Fig 3; 47pp; English.

XX AAM19555-W19572 are omega conopeptides (OCs) derived from natural  
 CC peptides from Conus sp. (cone snails). The peptides and their analogues  
 CC are used as analgesics acting by blocking N-type voltage-sensitive  
 CC calcium channels. The OCs can be used to treat neuropathic pain as a  
 CC result of e.g. insult to the spinal cord or peripheral nerves, cancer,  
 CC bone degenerative diseases, AIDS, reflex sympathetic dystrophy, herpes  
 CC zoster neuropathy, diabetic neuropathy, hyperesthesia, allodynia or  
 CC hyperalgesia. The OCs are preferably administered in a medicament via an  
 CC epidural route in a continuous infusion or sustained release formulation.

A method has been developed of selecting a test compound for treating inflammation. The method comprises measuring the activity of the test compound in blocking voltage-gated calcium channels, binding to the omega conopeptide binding site and inhibiting norepinephrine (noradrenaline) release from nervous tissue. The method is useful for selecting compounds for treating inflammation. The selected compounds are capable of producing analgesia in a mammalian subject with chronic or intractable

Query Match 98.6%; Score 145; DB 2; Length 25;  
Best Local Similarity 96.0%; Pred. No. 2e-09;  
Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKKGAKCSRLMYDCTGSCRSKGC 25  
| | | | | | | | | | | | | | | | | | | | | | | | | |  
DB 1 CKKGAKCSRLMYDCTGSCRSKGC 25

RESULT 6  
AAR37752  
ID AAR37752 standard; peptide; 25 AA.  
XX  
AC AAR37752;  
XX  
DT 25-MAR-2003 (revised)  
DT 08-SEP-1993 (first entry)  
XX  
DE MVIIA/SNX-111.  
XX  
KW Ischaemia; neuronal; omega-conotoxin; OCT; MVIIA; MVIIC; MVIID; MVIIB;  
KW GVIA; GVIIA; RVIA; SVIA; TVIA; SVIB; SNX-207; stroke; delayed treatment;  
KW antihistamine; blood pressure; N-type voltage-gated Ca currents;  
KW N-channel mediated neurotransmitter release.  
XX  
OS Synthetic.  
XX  
FT Key Location/Qualifiers  
FT Disulfide-bond 1..16  
FT Disulfide-bond 8..20  
FT Disulfide-bond 15..25  
XX  
PN WO9310145-A1.  
XX  
PD 27-MAY-1993.  
XX  
PF 12-NOV-1992; 92WO-US009766.  
XX  
PR 12-NOV-1991; 91US-00789913.  
PR 17-JUL-1992; 92US-00916478.  
XX  
PA (NEUR-) NEUREX CORP.  
XX  
PI Miljanich GP, Bowersox SS, Fox JA, Valentino KL, Bitner RS;  
PI Yamashiro DH;  
XX  
DR WPI; 1993-182487/22.  
XX  
PT Redn. of neuronal damage caused by ischaemia - by admin. of cpds. that  
PT bind specifically to omega-conotoxin MVIIA binding sites.  
XX  
PS Disclosure; Fig 1; 103pp; English.  
XX  
CC Ischaemia-related neuronal damage in mammals is reduced by admin., 4-24  
CC hr after onset of ischaemia, of a cpd. (I) which binds selectively to an  
CC omega-conotoxin (OCT) MVIIA site in neuronal tissue. (I) has selectivity  
CC at least 100 expressed as ratio of binding affinity for the MVIIA site to  
CC that for the MVIIC site. (I) is one of the OCTs MVIIA, MVIIB, GVIA, GVIIA  
CC or RVIA or it is the cpd. SNX-207. (I) is esp. used to reduce neuronal  
CC damage caused by stroke. By delaying admin. for some time (compare  
CC US5051403 where cpds. are given within 1 hr of the onset of ischaemia) a  
CC greater redn. in neuronal damage is achieved. (I) is admin. e.g. by  
CC intracerebroventricular (ICV) injection at 0.1-20 microg/kg, but can also  
CC be given i.v. (opt. after treatment with antihistamines to minimise redn.  
CC in blood pressure caused by (I)). (I) is also at least as effective as  
CC the specified conotoxins for (1) selective inhibition of N-type voltage-  
CC gated Ca currents in neuronal tissue and (2) selective inhibition of N-  
CC channel mediated neurotransmitter release in neuronal tissue. Primary  
CC sequences of omega-conopeptides are given in AAR37752-62. Several analog  
CC omega-conopeptides are given in AAR37763-76. (Updated on 25-MAR-2003 to  
CC correct PN field.)  
XX

SQ Sequence 25 AA;  
Query Match 98.6%; Score 145; DB 2; Length 25;  
Best Local Similarity 96.0%; Pred. No. 2e-09;  
Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKKGAKCSRLMYDCTGSCRSKGC 25  
| | | | | | | | | | | | | | | | | | | | | | | | | |  
DB 1 CKKGAKCSRLMYDCTGSCRSKGC 25

RESULT 7  
AAR32777  
ID AAR32777 standard; peptide; 25 AA.  
XX  
AC AAR32777;  
XX  
DT 28-JUN-1993 (first entry)  
XX  
DE MVIIA omega conotoxin peptide.  
XX  
KW OCT; neuronal damage reduction; ischemia; secondary damage; stroke.  
XX  
OS Synthetic.  
XX  
PN US5189020-A.  
XX  
PD 23-FEB-1993.  
XX  
PF 02-AUG-1990; 90US-00561766.  
XX  
PR 22-NOV-1989; 89US-00440094.  
XX  
PA (NEUR-) NEUREX CORP.  
XX  
PI Miljanich GP, Bitner RS, Bowersox SS, Fox JA, Valentino KL;  
PI Yamashiro DH, Teubokawa M;  
XX  
DR WPI; 1993-085564/10.  
XX  
PT Reducing neuronal damage due to ischaemia - involves using omega  
PT conotoxin peptide or fragment.  
XX  
PS Disclosure; Fig 1; 32pp; English.  
XX  
CC The sequence is that of the MVIIA omega conotoxin (OCT) peptide which can  
CC bind to an OCT binding protein, inhibit voltage-gated calcium currents  
CC selectively in neuronal tissue and inhibit neuronal transmitter release  
CC selectively in neuronal tissue. These properties all occur within the  
CC range of those of MVIIB, GVIIA, RVIA, or pref. MVIIA and GVIA OCTs. The  
CC peptide can be used in reducing or preventing both anatomical and  
CC functional secondary damage related to ischemia, generally as associated  
CC with stroke  
XX

SQ Sequence 25 AA;  
Query Match 98.6%; Score 145; DB 2; Length 25;  
Best Local Similarity 96.0%; Pred. No. 2e-09;  
Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKKGAKCSRLMYDCTGSCRSKGC 25  
| | | | | | | | | | | | | | | | | | | | | | | | | |  
DB 1 CKKGAKCSRLMYDCTGSCRSKGC 25

RESULT 8  
AAR76089  
ID AAR76089 standard; peptide; 25 AA.  
XX  
AC AAR76089;  
XX  
DT 27-AUG-2003 (revised)  
DT 25-MAR-2003 (revised)

DT 02-FEB-1996 (first entry)  
 XX Omega conotoxin MVIIA peptide.  
 DE  
 KW Omega conotoxin; marine snail; Conus; voltage-gated Ca channel blocker;  
 KW synaptosome; membrane; fish electric organ; mammalian brain; ischaemia;  
 KW binding protein; binding affinity; stroke.  
 XX  
 OS Conus.  
 XX  
 XX Key Location/Qualifiers  
 FT Disulfide-bond 1. .16  
 FT Disulfide-bond 8. .20  
 FT Disulfide-bond 15. .25  
 FT Modified-site 25  
 FT /note= "amidated C-terminus"  
 XX  
 XX US5424218-A.  
 PN  
 XX  
 XX 13-JUN-1995.  
 PD  
 XX  
 XX 04-NOV-1993; 93US-00147714.  
 PF  
 XX  
 XX 22-NOV-1989; 89US-00440094.  
 PR  
 XX 02-AUG-1990; 90US-00561766.  
 PR  
 XX 23-MAR-1992; 92US-00855269.  
 PR  
 XX (NEUR-) NEUREX CORP.  
 PA  
 XX Valentino KL, Bowersox SS, Bitner RS, Miljanich GP, Yamashiro DH;  
 PI Fox JA;  
 PI  
 XX WPI; 1995-223694/29.  
 DR  
 XX Identifying cpds. able to reduce neuronal damage caused by ischaemia - by  
 PT measuring their affinity to omega conotoxin MVIIA binding site and  
 PT ability e.g. to inhibit voltage gated calcium channels.  
 PT  
 XX Disclosure; Fig 1; 31pp; English.  
 PS  
 XX The peptides AAR76089-95 are naturally occurring omega conotoxin (OCT)  
 CC peptides derived from marine snails of the Conus genus. The peptide  
 CC sequences were used to chemically synthesise the OCT peptide fragments  
 CC AAR76096-RV6109. The OCT peptides act as voltage-gated Ca channel  
 CC blockers by binding to a 210 kD protein from synaptosomal membrane  
 CC preparations from fish electric organ or mammalian brains. The peptides  
 CC and their synthesised fragments can be used to screen for compounds that  
 CC bind to the OCT binding protein, by displacing a high affinity labelled  
 CC OCT, such as MVIIA, from a synaptosomal membrane preparation. The  
 CC compounds should have binding affinities and activities at least equal to  
 CC those of the natural peptides (Ki 0.44-324 nM). The screened compounds  
 CC are potentially useful in treating ischaemic conditions, esp. stroke, and  
 CC can reduce sec. anatomical and functional damage associated with those  
 CC conditions. (Updated on 25-MAR-2003 to correct PF field.) (Updated on 27-  
 CC AUG-2003 to correct OS field.)  
 XX  
 XX Sequence 25 AA;  
 SQ  
 Query Match 98.6%; Score 145; DB 2; Length 25;  
 Best Local Similarity 96.0%; Pred. No. 2e-09;  
 Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
 |||||  
 DB 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
 |||||  
 RESULT 9  
 AAW19544  
 ID AAW19544 standard; peptide; 25 AA.  
 XX  
 AC AAW19544;  
 XX

DT 27-AUG-2003 (revised)  
 DT 13-OCT-1997 (first entry)  
 XX  
 DE Natural omega-conopeptide MVIIA/SNX-111 used for pain relief.  
 KW Conopeptide; cone snail; pain; analgesic; neuropathy; epidural;  
 KW N-type voltage-sensitive calcium channel; block; Conus.  
 XX  
 OS Conus.  
 XX  
 XX Key Location/Qualifiers  
 FT Disulfide-bond 1. .16  
 FT Disulfide-bond 8. .20  
 FT Disulfide-bond 15. .25  
 FT Modified-site 25  
 FT /note= "optionally amidated"  
 XX  
 XX WO9701351-A1.  
 PN  
 XX  
 XX 16-JAN-1997.  
 PD  
 XX  
 XX 26-JUN-1996; 96WO-US011041.  
 PF  
 XX  
 XX 27-JUN-1995; 95US-00496847.  
 PR  
 XX 08-MAR-1996; 96US-00613400.  
 PR  
 XX (NEUR-) NEUREX CORP.  
 PA  
 XX Amstutz GA, Bowersox SS, Gohil K, Adriaenssens PI, Kristipati R;  
 PI Gadbois T, Pettus MR, Luther RR;  
 PI  
 XX WPI; 1997-100012/09.  
 DR  
 XX Stable omega conopeptide compositions - for producing analgesia and for  
 PT inhibiting progression of neuropathic pain disorders.  
 PT  
 XX Claim 3; Fig 1, Fig 3; 47pp; English.  
 PS  
 XX AAW19544-W19553 are naturally occurring omega conopeptides (OCs) isolated  
 CC from Conus sp. (cone snails). The peptides and their analogues are used  
 CC as analgesics acting by blocking N-type voltage-sensitive calcium  
 CC channels. The OCs can be used to treat neuropathic pain as a result of  
 CC e.g. insult to the spinal cord or peripheral nerves, cancer, bone zoster  
 CC degenerative diseases, AIDS, reflex sympathetic dystrophy, herpes zoster  
 CC neuropathy, diabetic neuropathy, hyperesthesia, allodynia or  
 CC hyperalgesia. The OCs are preferably administered in a medicament via an  
 CC epidural route in a continuous infusion or sustained release formulation.  
 CC The OCs can provide pain relief when administered epidurally in the  
 CC absence of a permeation enhancer, at doses that are comparable to  
 CC effective analgesic doses using intrathecal administration. OC  
 CC formulations comprising an OC and a carboxylic acid buffer anti-oxidant.  
 CC They also confer stability to solutions containing them for prolonged  
 CC treatment methods and long-term storage. (Updated on 27-AUG-2003 to  
 CC correct OS field.)  
 XX  
 XX Sequence 25 AA;  
 SQ  
 Query Match 98.6%; Score 145; DB 2; Length 25;  
 Best Local Similarity 96.0%; Pred. No. 2e-09;  
 Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
 |||||  
 DB 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
 |||||  
 RESULT 10  
 AAW19569  
 ID AAW19569 standard; peptide; 25 AA.  
 XX  
 AC AAW19569;  
 XX  
 XX 14-OCT-1997 (first entry)  
 DT

XX SNX-279, omega conopeptide derivative used for pain relief.  
 DE Conopeptide; cone snail; pain; analgesic; neuropathy; epidural;  
 KW N-type voltage-sensitive calcium channel; block; Conus.  
 XX Synthetic.  
 OS

XX Key Location/Qualifiers  
 FT Disulfide-bond 1. .16  
 FT Disulfide-bond 8. .20  
 FT Misc-difference 12  
 FT /label= Met(O)  
 FT /note= "sulphoxymethionine"  
 FT Disulfide-bond 15. .25  
 FT Modified-site 25  
 FT /note= "amidated"

PN WO9701351-A1.

XX 16-JAN-1997.

XX 26-JUN-1996; 96WO-US011041.

XX 27-JUN-1995; 95US-00496847.

PR 08-MAR-1996; 96US-00613400.

XX (NEUR-) NEUREX CORP.

XX Amstutz GA, Bowersox SS, Gohil K, Adriaenssens PI, Kristipati R;  
 PI Gadbois T, Pettus MR, Luther RR;  
 XX WPI; 1997-100012/09.

XX Stable omega conopeptide compositions - for producing analgesia and for  
 PT inhibiting progression of neuropathic pain disorders.

XX Claim 3; Fig 3; 47pp; English.

XX AAW19555-W19572 are omega conopeptides (OCs) derived from natural  
 CC peptides from Conus sp. (cone snails). The peptides and their analogues  
 CC are used as analgesics acting by blocking N-type voltage-sensitive  
 CC calcium channels. The OCs can be used to treat neuropathic pain as a  
 CC result of e.g. insult to the spinal cord or peripheral nerves, cancer,  
 CC bone degenerative diseases, AIDS, reflex sympathetic dystrophy, herpes  
 CC zoster neuropathy, diabetic neuropathy, hyperesthesia, allodynia or  
 CC hyperalgesia. The OCs are preferably administered in a medicament via an  
 CC epidural route in a continuous infusion or sustained release formulation.  
 CC The OCs can provide pain relief when administered epidurally in the  
 CC absence of a permeation enhancer, at doses that are comparable to  
 CC effective analgesic doses using intrathecal administration. OC  
 CC formulations comprising an OC and a carboxylic acid buffer anti-oxidant.  
 CC They also confer stability to solutions containing them for prolonged  
 CC treatment methods and long-term storage

XX Sequence 25 AA;

Query Match 98.6%; Score 145; DB 2; Length 25;  
 Best Local Similarity 96.0%; Pred. No. 2e-09;  
 Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGCSRSGKC 25

Db 1 CKGKGAKCSRLMYDCTGCSRSGKC 25

RESULT 11

AAW12967

ID AAW12967 standard; peptide; 25 AA.

XX AAW12967;

XX 25-MAR-2003 (revised)

DT 22-APR-1997 (first entry)  
 XX Omega conopeptide SNX-111.  
 DE  
 XX Omega conopeptide; analgesic; treatment; neuropathic pain; inhibition;  
 KW neuronal damage; schizophrenia; tardive dyskinesia; analgesia;  
 KW acute dystonic reactions; inflammation; epilepsy.  
 XX Synthetic.  
 OS  
 XX US5587454-A.  
 PN  
 XX 24-DEC-1996.  
 PD  
 XX 15-APR-1993; 93US-00049794.  
 PF  
 XX 30-DEC-1991; 91US-00814759.  
 PR  
 XX 30-DEC-1992; 92WO-US011349.  
 XX (NEUR-) NEUREX CORP.  
 PA  
 XX Gohil KC, Miljanich GP, Valentino KL, Justice A, Singh T;  
 PI WPI; 1997-064830/06.  
 DR  
 XX Omega conopeptide(s) - useful as analgesics, esp. for treating  
 PT neuropathic pain.  
 PT  
 XX Example 1; Col 39-40; 58pp; English.  
 PS  
 XX The present peptide is an omega conopeptide, useful as an analgesic,  
 CC especially for treating neuropathic pain. The peptide, which can be  
 CC prepared by solid phase synthesis, can also be used to inhibit neuronal  
 CC damage and treat schizophrenia, tardive dyskinesia, acute dystonic  
 CC reactions, inflammation and epilepsy. In a rat paw formalin test, the  
 CC peptide had an ED50 of 0.011 microg in phase 1, and 0.011 microg in phase  
 CC 2 (by intrathecal administration). (Updated on 25-MAR-2003 to correct pf  
 CC field.)  
 CC  
 XX Sequence 25 AA;

Query Match 98.6%; Score 145; DB 2; Length 25;  
 Best Local Similarity 96.0%; Pred. No. 2e-09;  
 Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGCSRSGKC 25

Db 1 CKGKGAKCSRLMYDCTGCSRSGKC 25

RESULT 12

AAW72605

ID AAW72605 standard; peptide; 25 AA.

XX AAW72605;

XX 27-AUG-2003 (revised)

DT 06-JAN-1999 (first entry)

XX Conus genus natural omega-conopeptide MVIIA/SNX-111.

XX Conus genus; marine snail; cone snail; omega-conopeptide; analgesia;  
 KW nociceptive pain; neuropathic pain; neuronal tissue; conotoxin;  
 KW inflammation; schizophrenia; tardive dyskinesia; acute dystonic reaction;  
 KW rheumatoid arthritis; epilepsy.

OS Conus.

XX US5824645-A.

PN

XX 20-OCT-1998.

XX 01-NOV-1996; 96US-00742774.



XX 30-DEC-1991; 91US-00814759.  
 PR 15-APR-1993; 93US-00049794.  
 PR 03-JUL-1996; 96US-00675354.  
 XX (NEUR-) NEUREX CORP.  
 XX Miljanich GP, Valentino KL, Gohl KC, Justice A, Singh T;  
 XX WPI; 1998-582596/49.  
 DR Treatment of inflammation, comprises administration of omega-conopeptide  
 PT -effective to block voltage-gated calcium channels, bind with high  
 PT affinity to omega-conopeptide binding site, and inhibit neuro-transmitter  
 PT release.  
 XX Disclosure; Fig 1; 58pp; English.  
 PS A method has been developed for the treatment of inflammation in a  
 CC subject. The method comprises administration of an omega-conopeptide  
 CC effective to: (i) block voltage-gated calcium channels; (ii) bind with  
 CC high affinity to an omega-conopeptide binding site; and (iii) inhibit  
 CC neurotransmitter release from nervous tissue. The method is used to treat  
 CC inflammation and associated pain. The treatment can also be used to  
 CC produce analgesia (especially in subjects experiencing neuropathic pain);  
 CC and to treat schizophrenia, tardive dyskinesia and acute dystonic  
 CC reactions, rheumatoid arthritis, and epilepsy. The present sequence  
 CC represents a natural omega-conopeptide. Omega-conopeptides are components  
 CC of peptide toxins produced by marine snails of the genus Conus, and which  
 CC act as calcium channel blockers. (Updated on 27-AUG-2003 to correct OS  
 CC field.)  
 XX SQ Sequence 25 AA;  
 Query Match 98.6%; Score 145; DB 2; Length 25;  
 Best Local Similarity 96.0%; Pred. No. 2e-09; Indels 0; Gaps 0;  
 Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 CKGKGACSRRLMYDCTGSCRSKGC 25  
 DB 1 CKGKGACSRRLMYDCTGSCRSKGC 25  
 RESULT 13  
 ID AAW95564  
 XX AAW95564 standard; protein; 25 AA.  
 AC AAW95564;  
 DT 29-MAR-1999 (first entry)  
 DE Omega-conopeptide MWIIA/SNX-111.  
 XX Omega-conopeptide; peptide toxin; snail; calcium channel blocker;  
 KW analgesia; guinea pig ileum; omega-conotoxin; pain; neuropathic.  
 XX Synthetic.  
 OS Conus sp.  
 XX Key Location/Qualifiers  
 FH Modified-site 25 /note= "C-terminal amide"  
 FT US859186-A.  
 PN 12-JAN-1999.  
 PD 03-JUL-1996; 96US-00675354.  
 PF 30-DEC-1991; 91US-00814759.  
 PR 15-APR-1993; 93US-00049794.  
 XX (NEUR-) NEUREX CORP.

XX Miljanich GP, Gohl KC, Valentino KL, Justice A, Singh T;  
 XX WPI; 1999-120002/10.  
 DR Production of analgesia in mammal - by administration of omega cono-  
 PT peptide(s).  
 PT Claim 3; Fig 1; 59pp; English.  
 PS Sequences AAW95564-573 represent primary sequences of natural omega-  
 CC conopeptides. Omega-conopeptides are components of peptide toxins  
 CC produced by marine snails of the genus Conus, and which act as calcium  
 CC channel blockers. The invention relates to a method of producing  
 CC analgesia in a mammal that comprises administering an omega conopeptide  
 CC having activities in (a) inhibiting electrically stimulated contraction  
 CC of guinea pig ileum and (b) selectively binding to omega conopeptide  
 CC MWIIA binding sites in neuronal tissue, where these activities are within  
 CC the ranges of those of omega-conotoxins MWIIA and TVIA. The method is  
 CC used for treating chronic pain, especially neuropathic pain. The present  
 CC sequence is a specifically claimed example of an omega-conopeptide that  
 CC can be used in the method of the invention  
 XX SQ Sequence 25 AA;  
 Query Match 98.6%; Score 145; DB 2; Length 25;  
 Best Local Similarity 96.0%; Pred. No. 2e-09;  
 Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 CKGKGACSRRLMYDCTGSCRSKGC 25  
 DB 1 CKGKGACSRRLMYDCTGSCRSKGC 25  
 RESULT 14  
 ID AAY42335  
 XX AAY42335 standard; peptide; 25 AA.  
 AC AAY42335;  
 DT 20-DEC-1999 (first entry)  
 DE Omega-conotoxin OCT MWIIA.  
 XX Calcium channel; neuron; retina; optic nerve; trauma; ischaemia; vision;  
 KW prevention.  
 XX Conus sp.  
 XX Key Location/Qualifiers  
 FH Disulfide-bond 1..16  
 FT Disulfide-bond 8..20  
 FT Disulfide-bond 15..25  
 FT Misc-difference 25 /note= "Optionally contains C-terminal amide"  
 XX US5965534-A.  
 PN 12-OCT-1999.  
 PD 13-MAR-1998; 98US-00039168.  
 PF 22-NOV-1995; 95US-00562142.  
 PR (ALCO-) ALCON LAB INC.  
 PA Hellberg M, Pang I, Kapin M;  
 XX WPI; 1999-579926/49.  
 XX Treatment or prevention of retinal or optic nerve head damage comprises  
 PT administration of an omega-conotoxin derivative.  
 XX

PS	Claim 2; Col 3-4; 7pp; English.	
XX	This sequence represents omega-conotoxin OCT WVIIA. Omega-conotoxins selectively block N-type calcium channels responsible for calcium influx in neurons. Acute retinal or optic nerve damage, which can result in the loss of vision, is caused by acute trauma and pathological events such as ischaemia, hypoxia or oedema. The release of excitatory amino acids is implicated in ischaemia-related neuronal and retinal damage, with excitatory amino acid release leading to excessive stimulation of post-synaptic excitatory amino acid receptors, which can result in cell injury. The release of such excitatory amino acids from presynaptic nerve terminals is dependent upon an elevation of calcium in the nerve terminal. This presynaptic calcium influx is mediated by the N-type calcium channels that are inhibited by omega-conotoxins. Intraocular administration of at least one omega-conotoxin could be used for the treatment or prevention of retinal or optic nerve head damage resulting from acute traumatic or acute ischaemic events	
XX		
SQ	Sequence 25 AA;	
	Query Match 98.6%; Score 145; DB 2; Length 25;	
	Best Local Similarity 96.0%; Pred. No. 2e-09;	
	Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;	
QY	1 CKGKAGC SRLMYDCCTGCSRGKC 25	
Db	1 CKGKAGC SRLMYDCCTGCSRGKC 25	
	Search completed: March 23, 2005, 00:03:02	
	Job time : 80.8581 secs	

RESULT 15	
AA56473	
ID	AA56473 standard; peptide; 25 AA.
XX	
AC	AA56473;
XX	
DT	16-FEB-2000 (first entry)
XX	
DE	Natural omega conopeptide WVIA/SNX-111.
XX	
KW	Omega conopeptide; analgesic; nociceptive; neuropathic; pain; conotoxin;
KW	marine snail; peptide toxin; inflammation; binding;
KW	voltage-gated calcium channel; inhibition; norepinephrine; noradrenaline;
KW	anti-inflammatory.
XX	
OS	Conus sp.
XX	
PN	US5994305-A.
XX	
PD	30-NOV-1999.
XX	
PF	21-AUG-1998; 98US-00138439.
XX	
PR	30-DEC-1991; 91US-00814759.
PR	15-APR-1993; 93US-00049794.
PR	03-JUL-1996; 96US-00675354.
PR	01-NOV-1996; 96US-00742774.
XX	
PA	(ELAN-) ELAN PHARM INC.
XX	
PI	Justice A, Singh T, Valentino KL, Miljanich GP, Gohil KC;
XX	
DR	WPI; 2000-038270/03.
XX	
PT	Measuring the activity of test compounds in blocking voltage-gated
PT	calcium channels, binding to the omega conopeptide binding site and
PT	inhibiting norepinephrine (noradrenaline) release for treating
PT	inflammation.
XX	
PS	Disclosure; Fig 1; 47pp; English.
XX	
CC	A method has been developed of selecting a test compound for treating
CC	inflammation. The method comprises measuring the activity of the test
CC	compound in blocking voltage-gated calcium channels, binding to the omega

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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:51:32 ; Search time 20.2145 Seconds  
(without alignments)  
92.321 Million cell updates/sec

Title: US-09-787-082A-10  
Perfect score: 151  
Sequence: 1 CKGKAKCSRLMYDCCTGCSRSKGC 25

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : Issued Patents AA.\*  
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2: /cgn2\_6/ptodata/1/1aa/5B\_COMB.pep.\*  
3: /cgn2\_6/ptodata/1/1aa/6A\_COMB.pep.\*  
4: /cgn2\_6/ptodata/1/1aa/6B\_COMB.pep.\*  
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Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	151	100.0	25	1 US-07-789-913-1	Sequence 1, Appl
2	151	100.0	25	1 US-08-049-794-1	Sequence 1, Appl
3	151	100.0	25	1 US-08-496-847-1	Sequence 1, Appl
4	151	100.0	25	2 US-08-742-774-1	Sequence 1, Appl
5	151	100.0	25	2 US-08-675-354-1	Sequence 1, Appl
6	151	100.0	25	2 US-08-965-918-1	Sequence 1, Appl
7	151	100.0	25	2 US-09-039-168-1	Sequence 1, Appl
8	151	100.0	25	2 US-09-138-439-1	Sequence 1, Appl
9	151	100.0	25	3 US-08-613-400A-1	Sequence 1, Appl
10	151	100.0	25	3 US-09-298-017-1	Sequence 1, Appl
11	151	100.0	25	3 US-09-392-979A-1	Sequence 1, Appl
12	151	100.0	26	1 US-07-789-913-11	Sequence 11, Appl
13	151	100.0	27	1 US-07-789-913-14	Sequence 14, Appl
14	151	100.0	27	1 US-07-789-913-15	Sequence 15, Appl
15	145	96.0	25	1 US-07-789-913-9	Sequence 9, Appl
16	145	96.0	25	1 US-07-789-913-10	Sequence 10, Appl
17	145	96.0	25	1 US-07-789-913-12	Sequence 12, Appl
18	145	96.0	25	1 US-07-789-913-13	Sequence 13, Appl
19	145	96.0	25	1 US-07-789-913-16	Sequence 16, Appl
20	145	96.0	25	1 US-07-789-913-17	Sequence 17, Appl
21	145	96.0	25	1 US-08-049-794-9	Sequence 9, Appl
22	145	96.0	25	1 US-08-049-794-16	Sequence 16, Appl
23	145	96.0	25	1 US-08-049-794-33	Sequence 33, Appl
24	145	96.0	25	1 US-08-496-847-9	Sequence 9, Appl
25	145	96.0	25	1 US-08-496-847-16	Sequence 16, Appl
26	145	96.0	25	1 US-08-496-847-33	Sequence 33, Appl
27	145	96.0	25	1 US-08-496-847-35	Sequence 35, Appl

28	145	96.0	25	1 US-08-496-847-36	Sequence 36, Appl
29	145	96.0	25	2 US-08-742-774-9	Sequence 9, Appl
30	145	96.0	25	2 US-08-742-774-16	Sequence 16, Appl
31	145	96.0	25	2 US-08-742-774-33	Sequence 33, Appl
32	145	96.0	25	2 US-08-675-354-9	Sequence 9, Appl
33	145	96.0	25	2 US-08-675-354-16	Sequence 16, Appl
34	145	96.0	25	2 US-08-675-354-33	Sequence 33, Appl
35	145	96.0	25	2 US-08-965-918-9	Sequence 9, Appl
36	145	96.0	25	2 US-08-965-918-16	Sequence 16, Appl
37	145	96.0	25	2 US-08-965-918-33	Sequence 33, Appl
38	145	96.0	25	2 US-08-965-918-35	Sequence 35, Appl
39	145	96.0	25	2 US-08-965-918-36	Sequence 36, Appl
40	145	96.0	25	2 US-09-138-439-9	Sequence 9, Appl
41	145	96.0	25	2 US-09-138-439-16	Sequence 16, Appl
42	145	96.0	25	2 US-09-138-439-33	Sequence 33, Appl
43	145	96.0	25	3 US-08-613-400A-9	Sequence 9, Appl
44	145	96.0	25	3 US-08-613-400A-16	Sequence 16, Appl
45	145	96.0	25	3 US-08-613-400A-33	Sequence 33, Appl

ALIGNMENTS

RESULT 1  
US-07-789-913-1  
; Sequence 1, Application US/077899913  
; Patent No. 5559095  
; GENERAL INFORMATION:  
; APPLICANT: Miljanich, George P.  
; APPLICANT: Bowersox, Stephen S.  
; APPLICANT: Fox, James A.  
; APPLICANT: Valentino, Karen L.  
; APPLICANT: Bitner, Robert S.  
; APPLICANT: Yamashiro, Donald H.  
; TITLE OF INVENTION: Delayed Treatment Method of Reducing  
; TITLE OF INVENTION: Ischemia-Related Neuronal Damage  
; NUMBER OF SEQUENCES: 28  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.25  
; CURRENT APPLICATION NUMBER: US/07789,913  
; FILING DATE: 19911112  
; CLASSIFICATION: 514  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/561,766  
; FILING DATE: 02-AUG-1990  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/440,094  
; FILING DATE: 22-NOV-1989  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0005.30  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 1:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 25 amino acids  
; TYPE: AMINO ACID  
; TOPOLOGY: both  
; MOLECULE TYPE: peptide  
; HYPOTHETICAL: NO

ANTI-SENSE: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: SNK-111  
US-07-789-913-1

Query Match 100.0%; Score 151; DB 1; Length 25;  
Best Local Similarity 100.0%; Pred. No. 1.7e-10;  
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CKGKAGCSRLMYDCTGSCRSKC 25  
DB 1 CKGKAGCSRLMYDCTGSCRSKC 25

## RESULT 2

US-08-049-794-1  
Sequence 1, Application US/08049794  
Patent No. 5587454  
GENERAL INFORMATION:  
APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 19930415  
CLASSIFICATION: 514  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/814,759  
FILING DATE: 30-DEC-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 25 amino acids  
TYPE: AMINO ACID  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: MVIITA/SNK-111, FIGURE 1  
US-08-049-794-1

Query Match 100.0%; Score 151; DB 1; Length 25;  
Best Local Similarity 100.0%; Pred. No. 1.7e-10;  
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CKGKAGCSRLMYDCTGSCRSKC 25  
DB 1 CKGKAGCSRLMYDCTGSCRSKC 25

## RESULT 3

US-08-496-847-1  
Sequence 1, Application US/08496847  
Patent No. 5795864  
GENERAL INFORMATION:  
APPLICANT: Amstutz, Gary A.  
APPLICANT: Bowersox, Stephen S.  
APPLICANT: Gohil, Kishorchandra  
APPLICANT: Adriaenssens, Peter I.  
APPLICANT: Kristipati, Ramasharma  
TITLE OF INVENTION: METHODS AND  
TITLE OF INVENTION: FORMULATIONS FOR PREVENTING PROGRESSION OF NEUROPATHIC PAIN  
NUMBER OF SEQUENCES: 36  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Dehlinger & Associates  
STREET: 350 Cambridge Avenue, Suite 250  
CITY: Palo Alto  
STATE: CA  
COUNTRY: US  
ZIP: 94306-1546  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: DOS  
SOFTWARE: FastSeq for Windows Version 2.0  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/496,847  
FILING DATE: 27-JUN-1995  
CLASSIFICATION: 514  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.31  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 650-324-0880  
TELEFAX: 650-324-0960  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 25 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: MVIITA/SNK-111, FIGURE 1  
US-08-496-847-1

Query Match 100.0%; Score 151; DB 1; Length 25;  
Best Local Similarity 100.0%; Pred. No. 1.7e-10;  
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKGKAGCSRLMYDCTGSCRSKC 25  
DB 1 CKGKAGCSRLMYDCTGSCRSKC 25

## RESULT 4

US-08-742-774-1  
Sequence 1, Application US/08742774  
Patent No. 5824645  
GENERAL INFORMATION:  
APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto

```

1 FILING DATE: 03-JUL-1996
2 CLASSIFICATION: 530
3 PRIOR APPLICATION DATA:
4 APPLICATION NUMBER: US/08/049,794
5 FILING DATE: 1993-APR-15
6 APPLICATION NUMBER: US 07/814,759
7 FILING DATE: 30-DEC-1991
8 ATTORNEY/AGENT INFORMATION:
9 NAME: Stratford, Carol A.
10 REGISTRATION NUMBER: 34,444
11 REFERENCE/DOCKET NUMBER: 5865-0009.30
12 TELECOMMUNICATION INFORMATION:
13 TELEPHONE: (415) 324-0880
14 TELEFAX: (415) 324-0960
15 INFORMATION FOR SEQ ID NO: 1:
16 SEQUENCE CHARACTERISTICS:
17 LENGTH: 25 amino acids
18 TYPE: amino acid
19 TOPOLOGY: linear
20 MOLECULE TYPE: protein
21 HYPOTHETICAL: NO
22 ORIGINAL SOURCE:
23 INDIVIDUAL ISOLATE: MVIIA/SNX-111, FIGURE 1
24 US-08-675-354-1
25
26 Query Match 100.0%; Score 151; DB 2; Length 25;
27 Best Local Similarity 100.0%; Pred. No. 1.7e-10;
28 Matches 25; Conservative 0; Mismatches 0; Indels
29
30 QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25
31 ||||||||||||||||||||||||
32 Db 1 CKGKGAKCSRLMYDCTGSCRSKGC 25
33 ||||||||||||||||||||||||
34
35 RESULT 6
36 US-08-965-918-1

```

0; Gaps 0;

NUMBER OF SEQUENCES: 36  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Dehlinger & Associates  
STREET: 350 Cambridge Avenue, Suite 250  
CITY: Palo Alto  
STATE: CA  
COUNTRY: US  
ZIP: 94306-1546  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: DOS  
SOFTWARE: FastSeq for Windows Version 2.0  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/965,918  
FILING DATE: 07-NOV-1997  
CLASSIFICATION: 514  
ATTORNEY/AGENT INFORMATION:  
NAME: Mohr, Judy M.  
REGISTRATION NUMBER: 38,563  
REFERENCE/DOCKET NUMBER: 5865-0009.34  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 650-324-0880  
TELEFAX: 650-324-0960  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 225 amino acids

RESULT 6  
US-08-965-918-1  
Sequence 1, Application US/08965918  
Patent No. 5891849  
GENERAL INFORMATION:  
APPLICANT: Amstutz, Gary A.  
APPLICANT: Bowersox, Stephen S.  
APPLICANT: Gohil, Kishorchandra  
APPLICANT: Adriaenssens, Peter I.  
APPLICANT: Kristipati, Ramasharma  
TITLE OF INVENTION: METHODS AND FORMULATIONS FOR PREVENTING  
TITLE OF INVENTION: PROGRESSION OF NEUROPATHIC PAIN  
NUMBER OF SEQUENCES: 36  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Dehlinger & Associates  
STREET: 350 Cambridge Avenue, Suite 250  
CITY: Palo Alto  
STATE: CA  
COUNTRY: US  
ZIP: 94306-1546  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: DOS  
SOFTWARE: FastSEQ for Windows Version 2.0  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/965,918  
FILING DATE: 07-NOV-1997  
CLASSIFICATION: 514  
ATTORNEY/AGENT INFORMATION:  
NAME: Mohr, Judy M.  
REGISTRATION NUMBER: 38,563  
REFERENCE/DOCKET NUMBER: 5865-0009.34  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 650-324-0880  
TELEFAX: 650-324-0960  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 25 amino acids

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; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: MWIIA/SNX-111, FIGURE 1
US-08-965-918-1
Query Match 100.0%; Score 151; DB 2; Length 25;
Best Local Similarity 100.0%; Pred. No. 1.7e-10;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKGKGAKCRLMYDCTGTCRSGKC 25
| | | | | | | | | | | | | | | | | | | | | | | | |
DB 1 CKGKGAKCRLMYDCTGTCRSGKC 25

RESULT 7
US-09-039-168-1
; Sequence 1, Application US/09039168
; Patent No. 5965534
; GENERAL INFORMATION:
; APPLICANT: Pang, Iok-Hou; Kapin, Michael and Hellberg,
; APPLICANT: Mark
; TITLE OF INVENTION: The Use of w-Conotoxin Analogs For
; TITLE OF INVENTION: Treating Retinal and Optic Nerve Head Damage
; NUMBER OF SEQUENCES: 7
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Alcon Laboratories, Inc.
; STREET: 6201 South Freeway, Patent Legal
; CITY: Fort Worth
; STATE: Texas
; COUNTRY: USA
; ZIP: 76134-2099
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 1.2 mg, 3.25" floppy disk
; COMPUTER: Compaq Deskpro XE 560
; OPERATING SYSTEM: Microsoft Windows for Workgroups,
; OPERATING SYSTEM: Version 3.11
; SOFTWARE: Microsoft Word 6.0
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/039,168
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 08/562,142
; FILING DATE: No. 5965534ember 22, 1995
; ATTORNEY/AGENT INFORMATION:
; NAME: MAYO, MICHAEL C.
; REGISTRATION NUMBER: 38,545
; REFERENCE/DOCKET NUMBER: 1462
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (817) 551-4321
; TELEFAX: (817) 551-4610
; INFORMATION FOR SEQ ID NO: 1:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 25 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: unknown
; MOLECULE TYPE: peptide
; DESCRIPTION: No
; HYPOTHETICAL: No
; ANTI-SENSE: No
US-09-039-168-1
Query Match 100.0%; Score 151; DB 2; Length 25;
Best Local Similarity 100.0%; Pred. No. 1.7e-10;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKGKGAKCRLMYDCTGTCRSGKC 25
| | | | | | | | | | | | | | | | | | | | | | | | |
DB 1 CKGKGAKCRLMYDCTGTCRSGKC 25
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```

RESULT 8
US-09-138-439-1
; Sequence 1, Application US/09138439
; Patent No. 5994305
; GENERAL INFORMATION:
; APPLICANT: JUSTICE, ALAN
; APPLICANT: SINGH, TEJINDER
; APPLICANT: GOHIL, KISHOR C.
; APPLICANT: VALENTINO, KAREN L
; APPLICANT: MILJANICH, GEORGE P
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA
; NUMBER OF SEQUENCES: 34
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Law Offices of Peter Dehlinger
; STREET: 350 Cambridge Avenue, Suite 300
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/138,439
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US/08/049,794
; FILING DATE: 1993-04-15
; APPLICATION NUMBER: US 07/814,759
; FILING DATE: 30-DEC-1991
; ATTORNEY/AGENT INFORMATION:
; NAME: Stratford, Carol A.
; REGISTRATION NUMBER: 34,444
; REFERENCE/DOCKET NUMBER: 5865-0009.30
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (415) 324-0880
; TELEFAX: (415) 324-0960
; INFORMATION FOR SEQ ID NO: 1:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 25 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: MWIIA/SNX-111, FIGURE 1
US-09-138-439-1
Query Match 100.0%; Score 151; DB 2; Length 25;
Best Local Similarity 100.0%; Pred. No. 1.7e-10;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKGKGAKCRLMYDCTGTCRSGKC 25
| | | | | | | | | | | | | | | | | | | | | | | | |
DB 1 CKGKGAKCRLMYDCTGTCRSGKC 25

RESULT 9
US-08-613-400A-1
; Sequence 1, Application US/08613400A
; Patent No. 6054429
; GENERAL INFORMATION:
; APPLICANT: Bowersox, S. Scott
; APPLICANT: Gadbois, Theresa
; APPLICANT: Pettus, Mark, R.
; APPLICANT: Luther, Robert, R.
; TITLE OF INVENTION: IMPROVED EPIDURAL
```

TITLE OF INVENTION: METHOD OF PRODUCING ANALGESIA  
NUMBER OF SEQUENCES: 36  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Dehlinger & Associates  
STREET: 350 Cambridge Avenue, Suite 250  
CITY: Palo Alto  
STATE: CA  
COUNTRY: US  
ZIP: 94306-1546  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: DOS  
SOFTWARE: FastSeq for Windows Version 2.0  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/613,400A  
FILING DATE: 08-MAR-1996  
CLASSIFICATION: 514  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER:  
FILING DATE:  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0019  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 650-324-0880  
TELEFAX: 650-324-0960  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 25 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: MVIIA/SNX-111, FIGURE 1  
US-08-613-400A-1  
Query Match 100.0%; Score 151; DB 3; Length 25;  
Best Local Similarity 100.0%; Pred. No. 1.7e-10;  
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
Qy 1 CKGKGAKCSRLMYDCTGCSRGKC 25  
Db 1 CKGKGAKCSRLMYDCTGCSRGKC 25  
RESULT 10  
US-09-298-017-1  
Sequence 1, Application US/09298017  
Patent No. 6087091  
GENERAL INFORMATION:  
APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/09298017  
FILING DATE:  
CLASSIFICATION:  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 1993-04-15  
APPLICATION NUMBER: US 07/814,759  
FILING DATE: 30-DEC-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELECOMMUNICATION INFORMATION:

CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/09/298,017  
FILING DATE:  
CLASSIFICATION:  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 08/049,794  
FILING DATE:  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 25 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: MVIIA/SNX-111, FIGURE 1  
US-09-298-017-1  
Query Match 100.0%; Score 151; DB 3; Length 25;  
Best Local Similarity 100.0%; Pred. No. 1.7e-10;  
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
Qy 1 CKGKGAKCSRLMYDCTGCSRGKC 25  
Db 1 CKGKGAKCSRLMYDCTGCSRGKC 25  
RESULT 11  
US-09-392-979A-1  
Sequence 1, Application US/09392979A  
Patent No. 6136786  
GENERAL INFORMATION:  
APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/09/392,979A  
FILING DATE:  
CLASSIFICATION:  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 1993-04-15  
APPLICATION NUMBER: US 07/814,759  
FILING DATE: 30-DEC-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELECOMMUNICATION INFORMATION:

```
; TELEPHONE: (415) 324-0880
; TELEFAX: (415) 324-0960
; INFORMATION FOR SEQ ID NO: 1:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 25 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: MWIIA/SNX-111, FIGURE 1
US-09-392-979A-1

Query Match 100.0%; Score 151; DB 3; Length 25;
Best Local Similarity 100.0%; Pred. No. 1.7e-10;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CKGKGAKCSRLMYDCTGCSRSGKC 25
Db - 1 CKGKGAKCSRLMYDCTGCSRSGKC 25

RESULT 12
US-07-789-913-11
; Sequence 11, Application US/07789913
; Patent No. 5559095
; GENERAL INFORMATION:
; APPLICANT: Miljanich, George P.
; APPLICANT: Bowersox, Stephen S.
; APPLICANT: Fox, James A.
; APPLICANT: Valentino, Karen L.
; APPLICANT: Bitner, Robert S.
; APPLICANT: Yamashiro, Donald H.
; TITLE OF INVENTION: Delayed Treatment Method of Reducing
; TITLE OF INVENTION: Ischemia-Related Neuronal Damage
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Law Offices of Peter Dehlinger
; STREET: 350 Cambridge Avenue, Suite 300
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/789,913
; FILING DATE: 19911112
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/561,766
; FILING DATE: 02-AUG-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/440,094
; FILING DATE: 22-NOV-1989
; ATTORNEY/AGENT INFORMATION:
; NAME: Stratford, Carol A.
; REGISTRATION NUMBER: 34,444
; REFERENCE/DOCKET NUMBER: 5865-0005.30
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (415) 324-0880
; TELEFAX: (415) 324-0960
; INFORMATION FOR SEQ ID NO: 11:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 26 amino acids
; TYPE: AMINO ACID
; TOPOLOGY: both
; MOLECULE TYPE: peptide
; HYPOTHETICAL: NO
; ANTI-SENSE: NO

Qy 1 CKGKGAKCSRLMYDCTGCSRSGKC 25
Db 1 CKGKGAKCSRLMYDCTGCSRSGKC 25

RESULT 13
US-07-789-913-14
; Sequence 14, Application US/07789913
; Patent No. 5559095
; GENERAL INFORMATION:
; APPLICANT: Miljanich, George P.
; APPLICANT: Bowersox, Stephen S.
; APPLICANT: Fox, James A.
; APPLICANT: Valentino, Karen L.
; APPLICANT: Bitner, Robert S.
; APPLICANT: Yamashiro, Donald H.
; TITLE OF INVENTION: Delayed Treatment Method of Reducing
; TITLE OF INVENTION: Ischemia-Related Neuronal Damage
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Law Offices of Peter Dehlinger
; STREET: 350 Cambridge Avenue, Suite 300
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/789,913
; FILING DATE: 19911112
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/561,766
; FILING DATE: 02-AUG-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/440,094
; FILING DATE: 22-NOV-1989
; ATTORNEY/AGENT INFORMATION:
; NAME: Stratford, Carol A.
; REGISTRATION NUMBER: 34,444
; REFERENCE/DOCKET NUMBER: 5865-0005.30
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (415) 324-0880
; TELEFAX: (415) 324-0960
; INFORMATION FOR SEQ ID NO: 14:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 27 amino acids
; TYPE: AMINO ACID
; TOPOLOGY: both
; MOLECULE TYPE: peptide
; HYPOTHETICAL: NO
; ANTI-SENSE: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: SNX-196
US-07-789-913-14

Query Match 100.0%; Score 151; DB 1; Length 27;
Best Local Similarity 100.0%; Pred. No. 1.8e-10;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CKGKGAKCSRLMYDCTGCSRSGKC 25
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Db 2 CKGKGAKCSRLMYDCTGCSRGKC 26

RESULT 14  
US-07-789-913-15  
; Sequence 15, Application US/07789913  
; Patent No. 555095  
; GENERAL INFORMATION:  
; APPLICANT: Miljanich, George P.  
; APPLICANT: Bowersox, Stephen S.  
; APPLICANT: Fox, James A.  
; APPLICANT: Valentino, Karen L.  
; APPLICANT: Bitner, Robert S.  
; APPLICANT: Yamashiro, Donald H.  
; TITLE OF INVENTION: Delayed Treatment Method of Reducing  
; Ischemia-Related Neuronal Damage  
; NUMBER OF SEQUENCES: 28  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; FILING DATE: 19911112  
; CLASSIFICATION: 514  
; PRIOR APPLICATION NUMBER: US/07/789,913  
; APPLICATION DATA:  
; FILING DATE: 02-AUG-1990  
; APPLICATION NUMBER: US 07/561,766  
; PRIOR APPLICATION DATA:  
; FILING DATE: 22-NOV-1989  
; APPLICATION NUMBER: US 07/440,094  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0005.30  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 15:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 27 amino acids  
; TYPE: AMINO ACID  
; TOPOLOGY: both  
; MOLECULE TYPE: peptide  
; HYPOTHETICAL: NO  
; ANTI-SENSE: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: SNX-197  
US-07-789-913-15

Query Match 100.0%; Score 151; DB 1; Length 27;  
Best Local Similarity 100.0%; Pred. No. 1.8e-10;  
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGCSRGKC 25  
Db 3 CKGKGAKCSRLMYDCTGCSRGKC 27

RESULT 15  
US-07-789-913-9  
; Sequence 9, Application US/07789913  
; Patent No. 555095  
; GENERAL INFORMATION:

; APPLICANT: Miljanich, George P.  
; APPLICANT: Bowersox, Stephen S.  
; APPLICANT: Fox, James A.  
; APPLICANT: Valentino, Karen L.  
; APPLICANT: Bitner, Robert S.  
; APPLICANT: Yamashiro, Donald H.  
; TITLE OF INVENTION: Delayed Treatment Method of Reducing  
; Ischemia-Related Neuronal Damage  
; NUMBER OF SEQUENCES: 28  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; FILING DATE: 19911112  
; CLASSIFICATION: 514  
; PRIOR APPLICATION NUMBER: US/07/789,913  
; APPLICATION DATA:  
; FILING DATE: 02-AUG-1990  
; APPLICATION NUMBER: US 07/561,766  
; PRIOR APPLICATION DATA:  
; FILING DATE: 22-NOV-1989  
; APPLICATION NUMBER: US 07/440,094  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0005.30  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 9:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 25 amino acids  
; TYPE: AMINO ACID  
; TOPOLOGY: both  
; MOLECULE TYPE: peptide  
; HYPOTHETICAL: NO  
; ANTI-SENSE: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: SNX-190  
US-07-789-913-9

Query Match 96.0%; Score 145; DB 1; Length 25;  
Best Local Similarity 96.0%; Pred. No. 7.8e-10;  
Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGCSRGKC 25  
Db 1 CKGAGAKCSRLMYDCTGCSRGKC 25

Search completed: March 23, 2005, 00:20:48  
Job time : 21.2145 secs



GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 23:46:47 ; Search time 57.0132 Seconds  
(without alignments)  
144.941 Million cell updates/sec

Title: US-09-787-082A-10  
Perfect score: 151  
Sequence: 1 CKGKAKCSRLMYDCTGSCRSKGC 25

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1401741 seqs, 330541175 residues  
Total number of hits satisfying chosen parameters: 1401741

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : Published Applications AA.\*  
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2: /cgn2\_6/ptodata/2/pubpaa/ECT\_NEW\_PUB.pep.\*  
3: /cgn2\_6/ptodata/2/pubpaa/US06\_NEW\_PUB.pep.\*  
4: /cgn2\_6/ptodata/2/pubpaa/US06\_PUBCOMB.pep.\*  
5: /cgn2\_6/ptodata/2/pubpaa/US07\_NEW\_PUB.pep.\*  
6: /cgn2\_6/ptodata/2/pubpaa/ECTUS\_PUBCOMB.pep.\*  
7: /cgn2\_6/ptodata/2/pubpaa/US08\_NEW\_PUB.pep.\*  
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9: /cgn2\_6/ptodata/2/pubpaa/US09A\_PUBCOMB.pep.\*  
10: /cgn2\_6/ptodata/2/pubpaa/US09B\_PUBCOMB.pep.\*  
11: /cgn2\_6/ptodata/2/pubpaa/US09C\_PUBCOMB.pep.\*  
12: /cgn2\_6/ptodata/2/pubpaa/US09D\_PUBCOMB.pep.\*  
13: /cgn2\_6/ptodata/2/pubpaa/US10A\_PUBCOMB.pep.\*  
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17: /cgn2\_6/ptodata/2/pubpaa/US10\_NEW\_PUB.pep.\*  
18: /cgn2\_6/ptodata/2/pubpaa/US11\_NEW\_PUB.pep.\*  
19: /cgn2\_6/ptodata/2/pubpaa/US60\_NEW\_PUB.pep.\*  
20: /cgn2\_6/ptodata/2/pubpaa/US60\_PUBCOMB.pep.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match %	Length	ID	Description
1	127	84.1	25	10	US-09-910-082A-323
2	127	84.1	25	16	US-10-765-926-323
3	127	84.1	71	10	US-09-910-082A-38
4	127	84.1	71	16	US-10-765-926-38
5	123	81.5	25	10	US-09-910-082A-379
6	123	81.5	25	16	US-10-765-926-379
7	123	81.5	71	10	US-09-910-082A-205
8	123	81.5	71	16	US-10-765-926-205
9	121	80.1	25	10	US-09-910-082A-325
10	121	80.1	25	10	US-09-910-082A-341
11	121	80.1	25	10	US-09-910-082A-375
12	121	80.1	25	16	US-10-765-926-325
13	121	80.1	25	16	US-10-765-926-341

14	121	80.1	25	16	US-10-765-926-375	Sequence 375, App
15	121	80.1	27	10	US-09-910-082A-350	Sequence 350, App
16	121	80.1	27	16	US-10-765-926-350	Sequence 350, App
17	121	80.1	71	10	US-09-910-082A-44	Sequence 44, Appl
18	121	80.1	71	10	US-09-910-082A-103	Sequence 103, App
19	121	80.1	71	10	US-09-910-082A-190	Sequence 190, App
20	121	80.1	71	16	US-10-765-926-44	Sequence 44, Appl
21	121	80.1	71	16	US-10-765-926-103	Sequence 103, App
22	121	80.1	71	16	US-10-765-926-190	Sequence 190, App
23	121	80.1	73	10	US-09-910-082A-94	Sequence 94, Appl
24	121	80.1	73	16	US-10-765-926-94	Sequence 94, Appl
25	120	79.5	25	10	US-09-910-082A-344	Sequence 344, App
26	120	79.5	25	10	US-09-910-082A-346	Sequence 346, App
27	120	79.5	25	16	US-10-765-926-344	Sequence 344, App
28	120	79.5	25	16	US-10-765-926-346	Sequence 346, App
29	120	79.5	71	10	US-09-910-082A-112	Sequence 112, App
30	120	79.5	71	10	US-09-910-082A-118	Sequence 118, App
31	120	79.5	71	16	US-10-765-926-112	Sequence 112, App
32	120	79.5	71	16	US-10-765-926-118	Sequence 118, App
33	119	78.8	25	10	US-09-910-082A-39	Sequence 39, Appl
34	119	78.8	25	16	US-10-765-926-39	Sequence 39, Appl
35	118	78.1	27	10	US-09-910-082A-398	Sequence 398, App
36	118	78.1	27	16	US-10-765-926-398	Sequence 398, App
37	118	78.1	73	10	US-09-910-082A-244	Sequence 244, App
38	118	78.1	73	16	US-10-765-926-244	Sequence 244, App
39	116	76.8	25	10	US-09-910-082A-104	Sequence 104, App
40	116	76.8	25	10	US-09-910-082A-378	Sequence 378, App
41	116	76.8	25	10	US-09-910-082A-396	Sequence 396, App
42	116	76.8	25	10	US-09-910-082A-403	Sequence 403, App
43	116	76.8	25	16	US-10-765-926-104	Sequence 104, App
44	116	76.8	25	16	US-10-765-926-378	Sequence 378, App
45	116	76.8	25	16	US-10-765-926-396	Sequence 396, App

ALIGNMENTS

RESULT 1

US-09-910-082A-323  
; Sequence 323, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ IDS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 323  
; LENGTH: 25  
; TYPE: PRT  
; ORGANISM: Conus aurisiacus  
US-09-910-082A-323

Query Match 84.1%; Score 127; DB 10; Length 25;  
Best Local Similarity 80.0%; Pred. No. 5.5e-08;  
Matches 20; Conservative 2; Mismatches 3; Indels 0; Gaps 0;  
QY 1 CKGKAKCSRLMYDCTGSCRSKGC 25

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Db 1 CKGKGKPCSRISYNCTGSCRSKGC 25
||||| |||: |:|||||
; TYPE: PRT
; ORGANISM: Conus aurisiacus
US-09-910-082A-38

Query Match 84.1%; Score 127; DB 10; Length 71;
Best Local Similarity 80.0%; Pred. No. 1.3e-07;
Matches 20; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

Qy 1 CKGKGKCSRLMYDCTGSCRSKGC 25
||||| |||: |:|||||
Db 46 CKGKGKPCSRISYNCTGSCRSKGC 70

RESULT 4
US-10-765-926-38
; Sequence 38, Application US/10765926
; Publication No. US20040132663A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/10765,926
; CURRENT FILING DATE: 2004-01-29
; PRIOR APPLICATION NUMBER: US 09/910,082
; PRIOR FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: Patentin version 3.0
; SEQ ID NO 38
; LENGTH: 71
; TYPE: PRT
; ORGANISM: Conus aurisiacus
US-10-765-926-38

Query Match 84.1%; Score 127; DB 16; Length 71;
Best Local Similarity 80.0%; Pred. No. 1.3e-07;
Matches 20; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

Qy 1 CKGKGKCSRLMYDCTGSCRSKGC 25
||||| |||: |:|||||
Db 46 CKGKGKPCSRISYNCTGSCRSKGC 70

RESULT 5
US-09-910-082A-379
; Sequence 379, Application US/09910082A
; Publication No. US20030119731A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/09/910,082A
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; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 379  
; LENGTH: 25  
; TYPE: PRT  
; ORGANISM: Conus monachus  
US-09-910-082A-379

Query Match 81.5%; Score 123; DB 10; Length 25;  
Best Local Similarity 76.0%; Pred. No. 1.6e-07;  
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKGKAKCSRLMYDCTGSCRSKGC 25  
DB 1 CKGGSSCSRTMYNCTGSCNRGKC 25

RESULT 6  
US-10-765-926-379  
; Sequence 379, Application US/10765926  
; Publication No. US20040132663A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/10/765,926  
; CURRENT FILING DATE: 2004-01-29  
; PRIOR APPLICATION NUMBER: US 09/910,082  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 379  
; LENGTH: 25  
; TYPE: PRT  
; ORGANISM: Conus monachus  
US-10-765-926-379

Query Match 81.5%; Score 123; DB 16; Length 25;  
Best Local Similarity 76.0%; Pred. No. 1.6e-07;  
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKGKAKCSRLMYDCTGSCRSKGC 25  
DB 1 CKGGSSCSRTMYNCTGSCNRGKC 25

RESULT 7  
US-09-910-082A-205  
; Sequence 205, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael

; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 205  
; LENGTH: 71  
; TYPE: PRT  
; ORGANISM: Conus monachus  
US-09-910-082A-205

Query Match 81.5%; Score 123; DB 10; Length 71;  
Best Local Similarity 76.0%; Pred. No. 3.7e-07;  
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKGKAKCSRLMYDCTGSCRSKGC 25  
DB 46 CKGGSSCSRTMYNCTGSCNRGKC 70

RESULT 8  
US-10-765-926-205  
; Sequence 205, Application US/10765926  
; Publication No. US20040132663A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/10/765,926  
; CURRENT FILING DATE: 2004-01-29  
; PRIOR APPLICATION NUMBER: US 09/910,082  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 205  
; LENGTH: 71  
; TYPE: PRT  
; ORGANISM: Conus monachus  
US-10-765-926-205

Query Match 81.5%; Score 123; DB 16; Length 71;  
Best Local Similarity 76.0%; Pred. No. 3.7e-07;  
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKGKAKCSRLMYDCTGSCRSKGC 25  
DB 46 CKGGSSCSRTMYNCTGSCNRGKC 70

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RESULT 9
US-09-910-082A-325
; Sequence 325, Application US/09910082A
; Publication No. US20030119731A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/09/910,082A
; PRIOR FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 325
; LENGTH: 25
; TYPE: PRT
; ORGANISM: Conus aurisiacus
US-09-910-082A-325

Query Match      80.1%; Score 121; DB 10; Length 25;
Best Local Similarity 76.0%; Pred. No. 2.7e-07;
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25
Db 1 CKAGKPCSR IAYNCTGSCRSKGC 25

RESULT 10
US-09-910-082A-341
; Sequence 341, Application US/09910082A
; Publication No. US20030119731A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/09/910,082A
; CURRENT FILING DATE: 2001-07-23
; PRIOR FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 341
; LENGTH: 25
; TYPE: PRT
; ORGANISM: Conus consors
US-09-910-082A-341

Query Match      80.1%; Score 121; DB 10; Length 25;
Best Local Similarity 76.0%; Pred. No. 2.7e-07;
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

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Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25
Db 1 CKGTGKPCSR IAYNCTGSCRSKGC 25

RESULT 11
US-09-910-082A-375
; Sequence 375, Application US/09910082A
; Publication No. US20030119731A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/09/910,082A
; CURRENT FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 375
; LENGTH: 25
; TYPE: PRT
; ORGANISM: Conus magus
US-09-910-082A-375

Query Match      80.1%; Score 121; DB 10; Length 25;
Best Local Similarity 76.0%; Pred. No. 2.7e-07;
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25
Db 1 CKGTGKPCSR IAYNCTGSCRSKGC 25

RESULT 12
US-10-765-926-325
; Sequence 325, Application US/10765926
; Publication No. US20040132663A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/10/765,926
; CURRENT FILING DATE: 2004-01-29
; PRIOR APPLICATION NUMBER: US 09/910,082
; PRIOR FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413

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; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 325
; LENGTH: 25
; TYPE: PRT
; ORGANISM: Conus aurisiacus
US-10-765-926-325

Query Match.
Best Local Similarity 80.1%; Score 121; DB 16; Length 25;
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKKGAKCSRLMYDCTGSCRSKGC 25
Db 1 CKAKGKPCSRRIAYNCTGSCRSKGC 25

RESULT 13
US-10-765-926-341
; Sequence 341, Application US/10765926
; Publication No. US20040132663A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/10/765,926
; CURRENT FILING DATE: 2004-01-29
; PRIOR APPLICATION NUMBER: US 09/910,082
; PRIOR FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 341
; LENGTH: 25
; TYPE: PRT
; ORGANISM: Conus consors
US-10-765-926-341

Query Match
Best Local Similarity 80.1%; Score 121; DB 16; Length 25;
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKKGAKCSRLMYDCTGSCRSKGC 25
Db 1 CKAKGKPCSRRIAYNCTGSCRSKGC 25

RESULT 14
US-10-765-926-375
; Sequence 375, Application US/10765926
; Publication No. US20040132663A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/10/765,926
; CURRENT FILING DATE: 2004-01-29
; PRIOR APPLICATION NUMBER: US 09/910,082
; PRIOR FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 341
; LENGTH: 25
; TYPE: PRT
; ORGANISM: Conus consors
US-10-765-926-341

Query Match
Best Local Similarity 80.1%; Score 121; DB 16; Length 25;
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKKGAKCSRLMYDCTGSCRSKGC 25
Db 1 CKAKGKPCSRRIAYNCTGSCRSKGC 25

RESULT 15
US-09-910-082A-350
; Sequence 350, Application US/09910082A
; Publication No. US20030119731A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/09/910,082A
; CURRENT FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 350
; LENGTH: 27
; TYPE: PRT
; ORGANISM: Conus circumcisaus
US-09-910-082A-350

Query Match
Best Local Similarity 80.1%; Score 121; DB 10; Length 27;
Matches 21; Conservative 2; Mismatches 2; Indels 2; Gaps 1;

QY 1 CKKGAKCSRLMYDCTGSCRSKGC 25
Db 1 CKSKGAKCSRLMYDCCSGCSRSYSGRC 27

Search completed: March 23, 2005, 00:35:01
Job time : 57.0846 secs
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GenCore version 5.1.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:16:20 ; Search time 14.0264 Seconds  
(without alignments)  
171.492 Million cell updates/sec

Title: US-09-787-082a-10  
Perfect score: 151  
Sequence: 1 CKGKAKCSRLMYDCTGCSRSKGC 25

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues

Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : PIR 79:\*  
1: pir1:\*  
2: pir2:\*  
3: pir3:\*  
4: pir4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	151	100.0	25	2 JH0700	omega-conotoxin MV
2	120	79.5	25	2 JH0701	omega-conotoxin MV
3	112.5	74.5	29	2 JH0699	omega-conotoxin MV
4	104	68.9	29	2 A58537	omega-conotoxin MV
5	97.5	64.6	26	2 C43379	omega-conotoxin SV
6	71.5	47.4	29	2 A43620	omega-conotoxin GV
7	71.5	47.4	29	2 B43620	omega-conotoxin GV
8	60.5	40.1	72	2 S39417	metallothionein 10
9	59	39.1	686	2 T25987	hypothetical prote
10	57.5	38.1	66	2 S58086	metallothionein 3
11	57.5	38.1	68	2 I67866	growth inhibitory
12	57.5	38.1	68	2 A46034	metallothionein 3
13	56.5	37.4	73	1 NTXN6G	omega-conotoxin GV
14	56	37.1	318	2 T05569	hypothetical prote
15	55.5	36.8	72	2 S39416	metallothionein 10
16	55	36.4	78	2 S12513	delta-conotoxin Tx
17	55	36.4	1506	2 A96808	hypothetical prote
18	55	36.4	2664	2 T28626	variant-specific s
19	54	35.8	27	2 S19619	delta-conotoxin Tx
20	54	35.8	68	2 B46034	metallothionein 3
21	54	35.8	68	2 S44392	metallothionein 3
22	54	35.8	68	2 JC5521	metallothionein II
23	54	35.8	615	1 KFHU12	coagulation factor
24	53.5	35.4	491	2 S2920	disintegrin (BC 3
25	53.5	35.4	544	2 S52477	disintegrin (BC 3
26	53	35.1	64	2 A25775	metallothionein A
27	53	35.1	64	2 A33825	metallothionein A
28	53	35.1	581	2 C96538	hypothetical prote
29	52.5	34.8	27	2 A58997	kappa-conotoxin PV

30	52.5	34.8	52	2 T10299	conotoxin-like pro
31	52	34.4	24	2 B44379	omega-conotoxin SV
32	52	34.4	65	2 A38739	metallothionein -
33	52	34.4	72	2 S39419	metallothionein 10
34	52	34.4	2524	2 A35844	xotch protein - Af
35	51	33.8	66	2 S36866	metallothionein -
36	51	33.8	558	2 JCS204	60K cysteine-rich
37	50.5	33.4	72	2 S39418	metallothionein 10
38	50.5	33.4	1589	2 C44766	defective chorion-
39	50	33.1	60	1 SMH01A	metallothionein 1A
40	50	33.1	186	2 H64407	keratin, type II,
41	50	33.1	491	2 S05408	hetaerodisulfide re
42	50	33.1	795	2 T20939	hypothetical prote
43	50	33.1	813	2 T21192	hypothetical prote
44	50	33.1	909	1 QXLL2	LDL receptor 2 pre
45	50	33.1	2318	2 S45306	notch 3 protein -

ALIGNMENTS

RESULT 1

JH0700  
omega-conotoxin MVIIA [validated] - cone shell (Conus magus)  
C:Species: Conus magus (magus cone)  
C>Date: 17-Apr-1993 #sequence\_revision 17-Apr-1993 #text\_change 09-Jul-2004  
C:Accession: JH0700; C60133; A34115  
R:Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadasdi, L.; Ramachandran, J.; Mj  
Neuron 9, 69-77, 1992  
A>Title: A new conus peptide ligand for mammalian presynaptic Ca2+ channels.  
A:Reference number: JH0699; MUID:92337922; PMID:1352986  
A:Accession: JH0700  
A>Status: nucleic acid sequence not shown  
A:Molecule type: mRNA  
A:Residues: 1-25 <HIL>  
A:Cross-references: UNIPROT:P05484  
R:Oliviera, B.M.; Gray, W.R.; Zeikus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Santos  
Science 230, 1338-1343, 1985  
A>Title: Peptide neurotoxins from fish-hunting cone snails.  
A:Reference number: A43620; MUID:86070213; PMID:4071055  
A:Accession: C60133  
A:Molecule type: protein  
A:Residues: 1-25 <OLI>  
R:Oliviera, B.M.; Cruz, L.J.; de Santos, V.; LeCheminant, G.W.; Griffin, D.; Zeikus, R.; M  
Biochemistry 26, 2086-2090, 1987  
A>Title: Neuronal calcium channel antagonists. Discrimination between calcium channel su  
A:Reference number: A34115; MUID:87299637; PMID:2441741  
A:Contents: annotation  
R:Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.  
submitted to the Brookhaven Protein Data Bank, August 1996  
A:Reference number: A67648; PDB:1MVI  
A:Contents: annotation; conformation by (1)H-NMR, residues 1-25  
R:Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.  
J. Mol. Biol. 263, 297-310, 1996  
A>Title: A consensus structure for omega-conotoxins with different selectivities for volt  
A:Reference number: A58619; MUID:97070382; PMID:8913308  
R:Kohn, T.; Kim, J.I.; Kobayashi, K.; Kodera, Y.; Maeda, T.; Sato, K.  
submitted to the Brookhaven Protein Data Bank, April 1995  
A:Reference number: A66296; PDB:1OMG  
A:Contents: annotation; conformation by (1)H-NMR, residues 1-25  
R:Kohn, T.; Kim, J.I.; Kobayashi, K.; Kodera, Y.; Maeda, T.; Sato, K.  
Biochemistry 34, 10256-10265, 1995  
A>Title: Three-dimensional structure in solution of the calcium channel blocker omega-con  
A:Reference number: A58627; MUID:95367555; PMID:7640281  
A:Contents: annotation; conformation by (1)H-NMR  
C:Superfamily: omega-conotoxin  
C:Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh  
F:1-16,8-20,15-25/disulfide bonds: #status predicted  
F:25/Modified site: amidated carboxyl end (Cys) #status experimental  
Query Match 100.0%; Score 151; DB 2; Length 25;  
Best Local Similarity 100.0%; Pred. No. 7.6e-11;



RESULT 8  
S39417  
metallothionein 10-II - blue mussel

A,Cross-references: UNIPROT:P37361; EMBL:X89603; NID:G908880; PIDN:CAA61762.1; PID:G908880  
R,Kobayashi, H.; Uchida, Y.; Inara, Y.; Nakajima, K.; Kohsaka, S.; Miyatake, T.; Tsuji, S.  
Brain Res. Mol. Brain Res. 19, 188-194, 1993  
A>Title: Molecular cloning of rat growth inhibitory factor cDNA and the expression in the  
A,Reference number: 152636; MUID:94018480; PMID:8412560  
A,Accession: 152636



QY 1 CKGKGAKCSRLMYDCCTGSC 20  
|||:|||||:  
Db 46 CKSPGSGCPTSYNGCR-SC 64

## RESULT 14

T05569  
hypothetical protein F22K18.150 - Arabidopsis thaliana  
C:Species: Arabidopsis thaliana (mouse-ear cress)  
C:Date: 23-Apr-1999 #sequence\_revision 23-Apr-1999 #text\_change 09-Jul-2004  
C:Accession: T05569  
R:Bevan, M.; Wedler, H.; Wedler, E.; Wambutt, R.; Hobeisel, J.; Mewes, H.W.; Mayer, K.F.  
submitted to the Protein Sequence Database, February 1999  
A:Reference number: Z15419  
A:Accession: T05569  
A:Molecule type: DNA  
A:Residues: 1-318 <BEV>  
A:Cross-references: UNIPROT:Q9SB60; EMBL:AL035356  
A:Experimental source: cultivar Columbia; BAC clone F22K18  
C:Genetics:  
A:Map position: 4  
A:Note: F22K18.150  
C:Superfamily: delta(2)-isopentenylpyrophosphate transferase

Query Match 37.1%; Score 56; DB 2; Length 318;  
Best Local Similarity 69.2%; Pred. NO. 18;  
Matches 9; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 4 KGAKCSRLMYDCC 16  
|||:|||||:  
Db 127 KGSICSELKYDCC 139

## RESULT 15

S39416  
metallothionein 10-I - blue mussel  
C:Species: Mytilus edulis (blue mussel)  
C:Date: 13-Jan-1995 #sequence\_revision 13-Jan-1995 #text\_change 09-Jul-2004  
C:Accession: S39416  
R:MacKay, E.A.; Overnell, J.; Dunbar, B.; Davidson, I.; Hunziker, P.E.; Kaegi, J.H.R.; F.  
Eur. J. Biochem. 218, 183-194, 1993  
A:Title: Complete amino acid sequences of five dimeric and four monomeric forms of metal  
A:Reference number: S39416; MUID:94062828; PMID:8243463  
A:Accession: S39416  
A:Molecule type: protein  
A:Residues: 1-72 <MAC>  
A:Cross-references: UNIPROT:P80246  
C:Superfamily: metallothionein  
C:Keywords: metal binding

Query Match 36.8%; Score 55.5; DB 2; Length 72;  
Best Local Similarity 44.0%; Pred. NO. 8.4;  
Matches 11; Conservative 1; Mismatches 12; Indels 1; Gaps 1;

QY 1 CKGKGAKCSRLMYDC-CTGSCRSKG 24  
|||:|||||:  
Db 31 CSGADCKCSGCKVCKSGRCEGK 55

Search completed: March 22, 2005, 22:54:16  
Job time : 15.0264 secs

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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:45:36 ; Search time 66.7492 Seconds

(without alignments)  
191.792 Million cell updates/sec

Title: US-09-787-082a-10

Perfect score: 151

Sequence: 1 CKGKGAKCSRLMYDCTGSCRSRGGK 25

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Uniprot 03.\*

1: uniprot\_sprot.\*

2: uniprot\_trembl.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match %	Length	DB ID	Description
1	151	100.0	71	1	Q9NCW0 conus catus
2	127	84.1	66	2	Q9NCV6 conus catus
3	127	84.1	66	2	Q9NCW3 conus catus
4	127	84.1	66	2	Q9NCW5 conus catus
5	127	84.1	66	2	Q9NCW6 conus catus
6	124	82.1	25	1	Q9NCV7 conus catus
7	122.5	81.1	26	1	Q9NCV8 conus catus
8	120	79.5	25	1	Q9NCV9 conus catus
9	120	79.5	66	2	Q9NCV5 conus catus
10	120	79.5	66	2	Q9NCV4 conus catus
11	117	77.5	66	2	Q9NCV7 conus catus
12	116	76.8	66	2	Q9NCV6 conus catus
13	116	76.8	66	2	Q9NCV1 conus catus
14	116	76.8	66	2	Q9NCV0 conus catus
15	116	76.8	66	2	Q9NCV4 conus catus
16	115	76.2	27	1	Q9NCV7 conus catus
17	115	76.2	66	2	Q9NCV5 conus catus
18	115	76.2	66	2	Q9NCV6 conus catus
19	115	76.2	66	2	Q9NCV1 conus catus
20	115	76.2	66	2	Q9NCV2 conus catus
21	115	76.2	66	2	Q9NCV3 conus catus
22	115	76.2	66	2	Q9NCV2 conus catus
23	115	76.2	71	1	Q9NCV2 conus catus
24	115	76.2	71	1	Q9NCV2 conus catus
25	114	75.5	66	2	Q9NCV7 conus catus
26	114	75.5	66	2	Q9NCV1 conus catus
27	114	75.5	73	1	Q9NCV2 conus catus
28	112.5	74.5	29	1	Q9NCV2 conus catus
29	104	68.9	29	1	Q9NCV2 conus catus
30	104	68.9	66	2	Q9NCV8 conus catus
31	104	68.9	66	2	Q9NCV9 conus catus

32	104	68.9	66	2	Q9NCW0
33	103	68.2	66	2	Q9NCV6
34	97.5	64.6	72	1	Q9NCV6
35	95	62.9	66	2	Q9NCV8
36	71.5	47.4	29	1	Q9NCV6
37	71	47.0	67	2	Q9NCV6
38	62	41.1	57	2	Q9NCV2
39	62	41.1	59	2	Q9NCV1
40	62	41.1	80	2	Q9NCV4
41	62	41.1	107	2	Q9NCV4
42	60.5	40.1	72	1	Q9NCV6
43	59.5	39.4	73	2	Q9NCV6
44	59	39.1	75	2	Q9NCV5
45	59	39.1	686	2	Q9NCV6

ALIGNMENTS

RESULT 1	CKXOA_CONMA	STANDARD;	PRT;	71 AA.
ID	CKXOA_CONMA			
AC	P05484;			
DT	01-NOV-1988 (Rel. 09, Created)			
DT	28-FEB-2003 (Rel. 41, Last sequence update)			
DT	25-OCT-2004 (Rel. 45, Last annotation update)			
DE	Omega-conotoxin MVIIa precursor (SNX-111) (Ziconotide).			
OS	Conus magus (Magus cone)			
OC	Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;			
OC	Apogastropoda; Caenogastropoda; Sorboconcha; Hypsogastropoda;			
OC	Neogastropoda; Conoidea; Conidae; Conus.			
OX	NCBI_TaxID=6492;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RC	TISSUE=Venus duct;			
RX	MEDLINE=20519630; PubMed=10938268; DOI=10.1074/jbc.M002252200;			
RA	Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,			
RA	Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,			
RA	Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;			
RT	"Novel omega-conotoxins from Conus catus discriminate among neuronal			
RT	calcium channel subtypes."			
RL	J. Biol. Chem. 275:35335-35344 (2000).			
RN	[2]			
RP	SEQUENCE OF 46-70.			
RX	MEDLINE=86070213; PubMed=4071055;			
RA	Olivera B.M., Gray W.R., Zeikus R.D., McIntosh J.M., Varga J.,			
RA	Rivier J.E., de Santos V., Cruz L.J.;			
RT	"Peptide neurotoxins from fish-hunting cone snails."			
RL	Science 230:1338-1343 (1985).			
RN	[3]			
RP	SEQUENCE OF 46-70.			
RX	MEDLINE=87299637; PubMed=2441741;			
RA	Olivera B.M., Cruz L.J., de Santos V., Lechmanant G.W., Griffin D.,			
RA	Zeikus R.D., McIntosh J.M., Galyean R., Varga J., Gray W.R.,			
RA	Rivier J.E.;			
RT	"Neuronal calcium channel antagonists. Discrimination between calcium			
RT	channel subtypes using omega-conotoxin from Conus magus venom."			
RL	Biochemistry 26:2086-2090 (1987).			
RN	[4]			
RP	DISULFIDE BONDS.			
RX	MEDLINE=96122186; PubMed=8537186;			
RA	Chung D., Gaur S., Bell J.R., Ramachandran J., Nadasdi L.;			
RT	"Determination of disulfide bridge pattern in omega-conopeptides."			
RL	Int. J. Pept. Protein Res. 46:320-325 (1995).			
RN	[5]			
RP	SYNTHESIS, AND MUTAGENESIS OF LYS-47 AND TYR-58.			
RX	MEDLINE=95126938; PubMed=7826361;			
RA	Kim J.I., Takahashi M., Ohtake A., Wakamiya A., Sato K.;			
RT	"Tyr13 is essential for the activity of omega-conotoxin MVIIA and			
RT	GVIA, specific N-type calcium channel blockers."			
RL	Biochem. Biophys. Res. Commun. 206:449-454 (1995).			
RN	[6]			
RP	STRUCTURE BY NMR.			

RX MEDLINE=95367555; PubMed=7640281;  
 RA Kohno T., Kim J.-I., Kobayashi K., Koderia Y., Maeda T., Sato K.;  
 RT "Three-dimensional structure in solution of the calcium channel  
 RT blocker omega-conotoxin MVIIA.";  
 RL Biochemistry 34:10256-10265(1995).  
 RN [7]  
 RP STRUCTURE BY NMR.  
 RX MEDLINE=95385787; PubMed=7656969; DOI=10.1016/0014-5793(95)00819-U;  
 RA Basua V.J., Nadaesi L., Ramachandran J., Miljanich G.P.;  
 RT "Solution structure of omega-conotoxin MVIIA using 2D NMR  
 RT spectroscopy.";  
 RL FEBS Lett. 370:163-169(1995).  
 RN [8]  
 RP STRUCTURE BY NMR.  
 RX MEDLINE=97070392; PubMed=8913308; DOI=10.1006/jmbi.1996.0576;  
 RA Nielsen K.J., Thomas L., Lewis R.J., Alewood P.F., Craik D.J.;  
 RT "A consensus structure for omega-conotoxins with different  
 RT selectivities for voltage-sensitive calcium channel subtypes:  
 RT comparison of MVIIA, SVIB and SNX-202.";  
 RL J. Mol. Biol. 263:297-310(1996).  
 RN [9]  
 RP STRUCTURE BY NMR.  
 RX MEDLINE=99303703; PubMed=10373375; DOI=10.1006/jmbi.1999.2817;  
 RA Nielsen K.J., Adams D., Thomas L., Bond T., Alewood P.F., Craik D.J.,  
 RA Lewis R.J.;  
 RT "Structure-activity relationships of omega-conotoxins MVIIA, MWIIC and  
 RT 14 loop splice hybrids at N and P/Q-type calcium channels.";  
 RL J. Mol. Biol. 289:1405-1421(1999).  
 RN [10]  
 RP STRUCTURE BY NMR.  
 RX MEDLINE=20213238; PubMed=10747778; DOI=10.1021/bi992651h;  
 RA Atkinson R.A., Kieffer B., Dejesere A., Sirockin P., Lefevre J.-F.;  
 RT "Structural and dynamic characterization of omega-conotoxin MVIIA: the  
 RT binding loop exhibits slow conformational exchange.";  
 RL Biochemistry 39:3908-3919(2000).  
 RN [11]  
 RP STRUCTURE BY NMR.  
 RX MEDLINE=21243158; PubMed=11344322; DOI=10.1110/ps.30701;  
 RA Goldenberg D.P., Koehn R.E., Gilbert D.E., Wagner G.;  
 RT "Solution structure and backbone dynamics of an omega-conotoxin  
 RT precursor.";  
 RL Protein Sci. 10:538-550(2001).  
 CC - FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind  
 CC and block voltage-sensitive calcium channels (VSCC). This toxin  
 CC blocks N-type calcium channels.  
 CC - SUBCELLULAR LOCATION: Secreted.  
 CC - TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC - PHARMACEUTICAL: Is under clinical trial by Neurax. It blocks acute  
 CC pain in patients who no longer obtain relief from opiate drugs. It  
 CC is 100 to 1000 times more potent than morphine. By blocking  
 CC calcium channels it disable nerves that transmit pain signals.  
 CC - SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type  
 CC family.  
 CC - DATABASE: NAME=Ziconotide Source; NOTE=Web site on ziconotide;  
 CC WWW="http://docmd.com/ziconotide/".  
 CC PIR; JH0700; JH0700.  
 DR PDB; 1DW4; NMR; A=1-25.  
 DR PDB; 1DW5; NMR; A=1-25.  
 DR PDB; 1FE0; NMR; A=1-25.  
 DR PDB; 1MWI; NMR; @=1-25.  
 DR PDB; 1OMG; NMR; @=1-25.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 KW 3D-structure; Amidation; Calcium channel inhibitor;  
 KW Direct protein sequencing; Ionic channel inhibitor; Neurotoxin;  
 KW Pharmaceutical; Presynaptic neurotoxin; Signal; Toxin.  
 FT SIGNAL 1 22 Potential.  
 FT PROPEP 23 45  
 FT PEPTIDE 46 70 Omega-conotoxin MVIIA.  
 FT DISULFID 46 61  
 FT DISULFID 53 65  
 FT DISULFID 60 70  
 FT MOD\_RES 70 70 Cysteine amide (G-71 provides amide

FT MUTAGEN 47 47 group).  
 FT MUTAGEN 58 Y->A: Strong decrease in activity.  
 SQ SEQUENCE 71 AA; 7587 MW; EZA3275C81AF31D CRC64;  
 Query Match 100.0%; Score 151; DB 1; Length 71;  
 Best Local Similarity 100.0%; Pred. No. 2.4e-11;  
 Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 CKGKAGKCSRLMYDCTGSCRSKGC 25  
 DB 46 CKGKAGKCSRLMYDCTGSCRSKGC 70  
 RESULT 2  
 Q9N633 PRELIMINARY; PRT; 66 AA.  
 AC Q9N633;  
 DT 01-OCT-2000 (TREMBlrel. 15, Created)  
 DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)  
 DT 05-JUL-2004 (TREMBlrel. 27, Last annotation update)  
 DE Four-loop conotoxin (Fragment).  
 OS Conus catus (Cat cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxId=101291;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174219; AAF89883.1; -  
 DR EMBL; AF174215; AAF89879.1; -  
 DR EMBL; AF174214; AAF89878.1; -  
 DR HSSP; P05484; 1FE0.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 DR GO; GO:0009405; P:pathogenesis; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 FT NON\_TER 1  
 SQ SEQUENCE 66 AA; 7053 MW; E45338A6968A1AC CRC64;  
 Query Match 84.1%; Score 127; DB 2; Length 66;  
 Best Local Similarity 80.0%; Pred. No. 2e-08;  
 Matches 20; Conservative 1; Mismatches 4; Indels 0; Gaps 0;  
 QY 1 CKGKAGKCSRLMYDCTGSCRSKGC 25  
 DB 41 CKGKAGCSRLTYDCTGSCRSKGC 65  
 RESULT 3  
 Q9NCW3 PRELIMINARY; PRT; 66 AA.  
 AC Q9NCW3;  
 DT 01-OCT-2000 (TREMBlrel. 15, Created)  
 DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)  
 DT 01-OCT-2003 (TREMBlrel. 25, Last annotation update)  
 DE Four-loop conotoxin (Fragment).  
 OS Conus catus (Cat cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxId=101291;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174220; AAF89884.1; -  
 DR HSSP; P05484; 1FE0.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.



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DR GO: 0009405; P: pathogenesis; IEA.
DR InterPro: IPR004214; Conotoxin.
DR Pfam: PF02950; Conotoxin; 1.
FT NON_TER 1
SQ SEQUENCE 66 AA; 7054 MW; E9FE5E310968A1AC CRC64;

Query Match      84.1%; Score 127; DB 2; Length 66;
Best Local Similarity 80.0%; Pred. No. 2e-08;
Matches 20; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGTCRSGKC 25
    |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||
Db 41 CKGKGASCRRTSYDCTGTCRSGRC 65

RESULT 4
Q9NCW5 PRELIMINARY; PRT; 66 AA.
AC Q9NCW5;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE Four-loop conotoxin (Fragment).
OS Conus catus (Cat cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=101291;
RN [1]
RP SEQUENCE FROM N.A.
RA Duda T.F., Palumbi S.R.;
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF174217; AAF89881.1; -.
DR HSSP; P05484; 1FEO.
DR GO: 0005576; C: extracellular; IEA.
DR GO: 0008200; F: ion channel inhibitor activity; IEA.
DR GO: 0009405; P: pathogenesis; IEA.
DR InterPro: IPR004214; Conotoxin.
DR Pfam: PF02950; Conotoxin; 1.
FT NON_TER 1
SQ SEQUENCE 66 AA; 7083 MW; E445338A7939B4A8 CRC64;

Query Match      84.1%; Score 127; DB 2; Length 66;
Best Local Similarity 80.0%; Pred. No. 2e-08;
Matches 20; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGTCRSGKC 25
    |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||
Db 41 CKGKGASCRRTSYDCTGTCRSGRC 65

RESULT 5
Q9NCW6 PRELIMINARY; PRT; 66 AA.
AC Q9NCW6;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE Four-loop conotoxin (Fragment).
OS Conus catus (Cat cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=101291;
RN [1]
RP SEQUENCE FROM N.A.
RA Duda T.F., Palumbi S.R.;
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF174216; AAF89880.1; -.
DR HSSP; P05484; 1FEO.
DR GO: 0005576; C: extracellular; IEA.
DR GO: 0008200; F: ion channel inhibitor activity; IEA.
DR GO: 0009405; P: pathogenesis; IEA.
DR InterPro: IPR004214; Conotoxin.
DR Pfam: PF02950; Conotoxin; 1.
FT NON_TER 1
SQ SEQUENCE 66 AA; 7083 MW; E445338A7939B4A8 CRC64;

Query Match      84.1%; Score 127; DB 2; Length 66;
Best Local Similarity 80.0%; Pred. No. 2e-08;
Matches 20; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGTCRSGKC 25
    |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||
Db 41 CKGKGASCRRTSYDCTGTCRSGRC 65

RESULT 6
CXOB_CONCT STANDARD; PRT; 25 AA.
ID CXOB_CONCT
AC P58918;
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Omega-conotoxin CVIB.
OS Conus catus (Cat cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=101291;
RN [1]
RP SEQUENCE, AND SYNTHESIS.
RC TISSUE=Venom;
RX MEDLINE=20519630; PubMed=10938268; DOI=10.1074/jbc.M002252200;
RA Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,
RA Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,
RA Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;
RT "Novel omega-conotoxins from Conus catus discriminate among neuronal
    calcium channel subtypes."
RL J. Biol. Chem. 275:35335-35344 (2000).
CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
    and block voltage-sensitive calcium channels (VSCC) (By
    similarity). This toxin blocks N-, P-, and Q-type calcium
    channels.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type
    family.
CC HSSP; P37300; 1CNN.
KW Amidation; Calcium channel inhibitor; Direct protein sequencing;
KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Toxin.
FT DISULFID 1 16 By similarity.
FT DISULFID 8 20 By similarity.
FT DISULFID 15 25 By similarity.
FT MOD_RES 25 25 Cysteine amide.
SQ SEQUENCE 25 AA; 2717 MW; D41A9E5F5AFA9552 CRC64;

Query Match      82.1%; Score 124; DB 1; Length 25;
Best Local Similarity 76.0%; Pred. No. 2e-08;
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGTCRSGKC 25
    |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||
Db 1 CKGKGASCRRTSYDCTGTCRSGRC 25

RESULT 7
CXOC_CONCT STANDARD; PRT; 26 AA.
ID CXOC_CONCT
AC P58919;
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Omega-conotoxin CVIC.
OS Conus catus (Cat cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;

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FT NON_TER 1 1
SQ SEQUENCE 66 AA; 6995 MW; E445338AGAA7A1AC CRC64;

Query Match
Best Local Similarity 79.5%; Score 120; DB 2; Length 66;
Matches 19; Conservative 1; Mismatches 5; Indels 0; Gaps 0;

QY 1 CKGKGAACRLMYDCTGTCRSGKC 25
DB 41 CKGKGAACRLMYDCTGTCRSGKC 65

RESULT 11
Q9NCV7
ID Q9NCV7 PRELIMINARY; PRT; 66 AA.
AC Q9NCV7;
DT 01-OCT-2000 (TREMELrel. 15, Created)
DT 01-OCT-2000 (TREMELrel. 15, Last sequence update)
DT 01-OCT-2003 (TREMELrel. 25, Last annotation update)
DE Four-loop conotoxin (Fragment).
OS Conus catus (Cat cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=101291;
RN [1]
RP SEQUENCE FROM N.A.
RA Duda T.F., Palumbi S.R.;
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF174236; AAF89900.1; -.
DR HSSP; P05484; 1FEO.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0008200; P:ion channel inhibitor activity; IEA.
DR GO; GO:0009405; P:pathogenesis; IEA.
DR InterPro; IPR004214; Conotoxin.
DR Pfam; PF02950; Conotoxin; 1.
FT NON_TER 1
SQ SEQUENCE 66 AA; 7053 MW; 7453798AG698B31B CRC64;

Query Match
Best Local Similarity 77.5%; Score 117; DB 2; Length 66;
Matches 17; Conservative 4; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKGKGAACRLMYDCTGTCRSGKC 25
DB 41 CQGGAGACRLMYDCTGTCRSGKC 65

RESULT 12
Q9N6N6
ID Q9N6N6 PRELIMINARY; PRT; 66 AA.
AC Q9N6N6;
DT 01-OCT-2000 (TREMELrel. 15, Created)
DT 01-OCT-2000 (TREMELrel. 15, Last sequence update)
DT 05-JUL-2004 (TREMELrel. 27, Last annotation update)
DE Four-loop conotoxin (Fragment).
OS Conus striatus (Striated cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6493;
RN [1]
RP SEQUENCE FROM N.A.
RA Duda T.F., Palumbi S.R.;
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF174244; AAF89908.1; -.
DR EMBL; AF174240; AAF89904.1; -.
DR HSSP; Q9XZK2; 1FYG.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0008200; P:ion channel inhibitor activity; IEA.
DR GO; GO:0009405; P:pathogenesis; IEA.
DR InterPro; IPR004214; Conotoxin.
DR Pfam; PF02950; Conotoxin; 1.
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FT NON_TER 1 1
SQ SEQUENCE 66 AA; 6966 MW; 29A992710CA7DA05 CRC64;

Query Match
Best Local Similarity 76.8%; Score 116; DB 2; Length 66;
Matches 18; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

QY 1 CKGKGAACRLMYDCTGTCRSGKC 25
DB 41 CKAGKSCRLAYNCTGTCRSGKC 65

RESULT 13
Q9NCU1
ID Q9NCU1 PRELIMINARY; PRT; 66 AA.
AC Q9NCU1;
DT 01-OCT-2000 (TREMELrel. 15, Created)
DT 01-OCT-2000 (TREMELrel. 15, Last sequence update)
DT 01-OCT-2003 (TREMELrel. 25, Last annotation update)
DE Four-loop conotoxin (Fragment).
OS Conus striatus (Striated cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6493;
RN [1]
RP SEQUENCE FROM N.A.
RA Duda T.F., Palumbi S.R.;
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF174267; AAF89931.1; -.
DR HSSP; Q9XZK2; 1FYG.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0008200; P:ion channel inhibitor activity; IEA.
DR GO; GO:0009405; P:pathogenesis; IEA.
DR InterPro; IPR004214; Conotoxin.
DR Pfam; PF02950; Conotoxin; 1.
FT NON_TER 1
SQ SEQUENCE 66 AA; 6951 MW; 0D9868C0A7A1A39F CRC64;

Query Match
Best Local Similarity 72.0%; Score 116; DB 2; Length 66;
Matches 18; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

QY 1 CKGKGAACRLMYDCTGTCRSGKC 25
DB 41 CKAGKSCRLAYNCTGTCRSGKC 65

RESULT 14
Q9NCV0
ID Q9NCV0 PRELIMINARY; PRT; 66 AA.
AC Q9NCV0;
DT 01-OCT-2000 (TREMELrel. 15, Created)
DT 01-OCT-2000 (TREMELrel. 15, Last sequence update)
DT 01-OCT-2003 (TREMELrel. 25, Last annotation update)
DE Four-loop conotoxin (Fragment).
OS Conus striatus (Striated cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6493;
RN [1]
RP SEQUENCE FROM N.A.
RA Duda T.F., Palumbi S.R.;
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF174246; AAF89910.1; -.
DR HSSP; Q9XZK2; 1FYG.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0008200; P:ion channel inhibitor activity; IEA.
DR GO; GO:0009405; P:pathogenesis; IEA.
DR InterPro; IPR004214; Conotoxin.
DR Pfam; PF02950; Conotoxin; 1.
FT NON_TER 1
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SQ SEQUENCE 66 AA; 6981 MW; 20CDC33D7CA7DA05 CRC64;

Query Match 76.8%; Score 116; DB 2; Length 66;  
Best Local Similarity 72.0%; Pred. NO. 4.4e-07;  
Matches 18; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCCCTGSCRSKGK 25  
DB 41 CRAAGKSCSRIAYNCTGSCRSKGK 65

## RESULT 15

Q9NCV4

ID Q9NCV4 PRELIMINARY; PRT; 66 AA.

AC Q9NCV4;  
DT 01-OCT-2000 (TReMBLrel. 15, Created)  
DT 01-OCT-2000 (TReMBLrel. 15, Last sequence update)  
DT 01-OCT-2003 (TReMBLrel. 25, Last annotation update)  
DE Four-loop conotoxin (Fragment).  
OS Conus striatus (Striated cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=6493;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA Duda T.F., Palumbi S.R.;  
RL Submitted (AUG-1999) to the EMBL/GenBank/DDBJ databases.  
DR EMBL; AF174241; AAF89905.1; -.  
DR HSSP; Q9XZK2; 1FYG.  
DR GO; GO:0005576; C:extracellular; IEA.  
DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
DR GO; GO:0009405; P:pathogenesis; IEA.  
DR InterPro; IPR004214; Conotoxin.  
DR Pfam; PF02950; Conotoxin; 1.  
FT NON TER 1  
SQ SEQUENCE 66 AA; 6980 MW; 286F491D7CA7DA05 CRC64;

Query Match 76.8%; Score 116; DB 2; Length 66;  
Best Local Similarity 72.0%; Pred. NO. 4.4e-07;  
Matches 18; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCCCTGSCRSKGK 25  
DB 41 CRAAGKSCSRIAYNCTGSCRSKGK 65

Search completed: March 23, 2005, 00:16:37  
Job time : 67.7492 secs

Result No.	Score	Query		DB	ID	Description
		Match	Length			
1	145	99.3	25	1	US-07-789-913-17	Sequence 17, Appl
2	145	98.6	25	1	US-07-789-913-1	Sequence 1, Appli
3	145	98.6	25	1	US-08-049-794-1	Sequence 1, Appli
4	145	98.6	25	1	US-08-496-847-1	Sequence 1, Appli
5	145	98.6	25	2	US-08-742-774-1	Sequence 1, Appli
6	145	98.6	25	2	US-08-675-354-1	Sequence 1, Appli
7	145	98.6	25	2	US-08-965-918-1	Sequence 1, Appli
8	145	98.6	25	2	US-09-039-168-1	Sequence 1, Appli
9	145	98.6	25	2	US-09-138-439-1	Sequence 1, Appli
10	145	98.6	25	3	US-08-613-400A-1	Sequence 1, Appli
11	145	98.6	25	3	US-09-298-017-1	Sequence 1, Appli
12	145	98.6	25	3	US-09-392-979A-1	Sequence 1, Appli
13	145	98.6	26	1	US-07-789-913-11	Sequence 11, Appl
14	145	98.6	27	1	US-07-789-913-14	Sequence 14, Appl
15	145	98.6	27	1	US-07-789-913-15	Sequence 15, Appl
16	141	95.9	25	6	5424218-1	Patent No. 5424218
17	141	95.9	25	6	5424218-1	Patent No. 5424218
18	140	95.2	25	1	US-08-049-794-17	Sequence 17, Appl
19	140	95.2	25	1	US-08-496-847-17	Sequence 17, Appl
20	140	95.2	25	2	US-08-742-774-17	Sequence 17, Appl
21	140	95.2	25	2	US-08-675-354-17	Sequence 17, Appl
22	140	95.2	25	2	US-08-965-918-17	Sequence 17, Appl
23	140	95.2	25	2	US-09-138-439-17	Sequence 17, Appl
24	140	95.2	25	3	US-08-613-400A-17	Sequence 17, Appl
25	140	95.2	25	3	US-09-298-017-17	Sequence 17, Appl
26	140	95.2	25	3	US-09-392-979A-17	Sequence 17, Appl
27	139	94.6	25	1	US-07-789-913-9	Sequence 9, Appli

ANTI-SENSE: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: SNX-200  
US-07-789-913-17

Query Match 99.3%; Score 146; DB 1; Length 25;  
Best Local Similarity 96.0%; Pred. No. 1.6e-09;  
Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKGKAGCRLMYDCTGTCRSGKC 25  
|||||  
Db 1 CKGKAGCRLMYDCTGTCRSGKC 25  
|||||

## RESULT 2

US-07-789-913-1  
Sequence 1, Application US/07789913  
Patent No. 5559095

## GENERAL INFORMATION:

APPLICANT: Miljanich, George P.  
APPLICANT: Bowersox, Stephen S.  
APPLICANT: Fox, James A.  
APPLICANT: Valentino, Karen L.  
APPLICANT: Bitner, Robert S.  
APPLICANT: Yamashiro, Donald H.  
TITLE OF INVENTION: Delayed Treatment Method of Reducing  
TITLE OF INVENTION: Ischemia-Related Neuronal Damage  
NUMBER OF SEQUENCES: 28  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306

## COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent in Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/789,913  
FILING DATE: 19911112  
CLASSIFICATION: 514  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/561,766  
FILING DATE: 02-AUG-1990  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/440,094  
FILING DATE: 22-NOV-1989

## ATTORNEY/AGENT INFORMATION:

NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0005.30  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 25 amino acids  
TYPE: AMINO ACID  
TOPOLOGY: both  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ANTI-SENSE: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: SNX-111

US-07-789-913-1

Query Match 98.6%; Score 145; DB 1; Length 25;  
Best Local Similarity 96.0%; Pred. No. 2.1e-09;  
Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKGKAGCRLMYDCTGTCRSGKC 25  
|||||  
Db 1 CKGKAGCRLMYDCTGTCRSGKC 25  
|||||

## RESULT 3

US-08-049-794-1  
Sequence 1, Application US/08049794  
Patent No. 5587454

## GENERAL INFORMATION:

APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306

## COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent in Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 19930415  
CLASSIFICATION: 514  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/814,759  
FILING DATE: 30-DEC-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 25 amino acids  
TYPE: AMINO ACID  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: MVIIA/SNX-111, FIGURE 1

US-08-049-794-1

Query Match 98.6%; Score 145; DB 1; Length 25;  
Best Local Similarity 96.0%; Pred. No. 2.1e-09;  
Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKGKAGCRLMYDCTGTCRSGKC 25  
|||||  
Db 1 CKGKAGCRLMYDCTGTCRSGKC 25  
|||||

## RESULT 4

US-08-496-847-1  
Sequence 1, Application US/08496847  
Patent No. 5795864

## GENERAL INFORMATION:

APPLICANT: Amstutz, Gary A.  
APPLICANT: Bowersox, Stephen S.  
APPLICANT: Gohil, Kishorchandra  
APPLICANT: Adriaenssens, Peter I.

APPLICANT: Kristipati, Ramasharma  
TITLE OF INVENTION: METHODS AND FORMULATIONS FOR PREVENTING PROGRESSION OF NEUROPATHIC PAIN  
NUMBER OF SEQUENCES: 36  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Dehlinger & Associates  
STREET: 350 Cambridge Avenue, Suite 250  
CITY: Palo Alto  
STATE: CA  
COUNTRY: US  
ZIP: 94306-1546  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: DOS  
SOFTWARE: Fast-Seq for Windows Version 2.0  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/496,847  
FILING DATE: 27-JUN-1995  
CLASSIFICATION: 514  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.31  
TELEPHONE: 650-324-0880  
TELEFAX: 650-324-0960  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 25 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: MVIIA/SNX-111, FIGURE 1  
US-08-496-847-1

Query Match 98.6%; Score 145; DB 1; Length 25;  
Best Local Similarity 96.0%; Pred. No. 2,1e-09;  
Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
|||||  
Db 1 CKGKGAKCSRLMYDCTGSCRSKGC 25

RESULT 5  
US-08-742-774-1  
Sequence 1, Application US/08/42774  
Patent No. 5824645  
GENERAL INFORMATION:  
APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/742,774  
FILING DATE:  
CLASSIFICATION:  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 08/675,354  
FILING DATE: 03-JUL-1996  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 1993-APR-15  
APPLICATION NUMBER: US 07/814,759  
FILING DATE: 30-DEC-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 25 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: MVIIA/SNX-111, FIGURE 1  
US-08-742-774-1

Query Match 98.6%; Score 145; DB 2; Length 25;  
Best Local Similarity 96.0%; Pred. No. 2,1e-09;  
Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
|||||  
Db 1 CKGKGAKCSRLMYDCTGSCRSKGC 25

RESULT 6  
US-08-675-354-1  
Sequence 1, Application US/08/675354  
Patent No. 5859186  
GENERAL INFORMATION:  
APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/675,354  
FILING DATE: 03-JUL-1996  
CLASSIFICATION: 530  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 1993-APR-15  
APPLICATION NUMBER: US 07/814,759  
FILING DATE: 30-DEC-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.

; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0009.30  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 1:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 25 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: MVIITA/SNX-111, FIGURE 1  
US-08-675-354-1

Query Match 98.6%; Score 145; DB 2; Length 25;  
Best Local Similarity 96.0%; Pred. No. 2.1e-09;  
Matches 24; Conservative 0; Mismatches 1; Indels 0;

QY 1 CKGKGCXSRMLMYDCTGSCRSKGC 25  
DB 1 CKGKGCXSRMLMYDCTGSCRSKGC 25

RESULT 7  
US-08-965-918-1  
; Sequence 1, Application US/08965918  
; Patent No. 5891849  
; GENERAL INFORMATION:  
; APPLICANT: Amstutz, Gary A.  
; APPLICANT: Bowersox, Stephen S.  
; APPLICANT: Gohil, Kishorchandra  
; APPLICANT: Adriaenssens, Peter I.  
; APPLICANT: Kristipati, Ramasharma  
; TITLE OF INVENTION: METHODS AND FORMULATIONS FOR PREVENTING  
; TITLE OF INVENTION: PROGRESSION OF NEUROPATHIC PAIN  
; NUMBER OF SEQUENCES: 36  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Dehlinger & Associates  
; STREET: 350 Cambridge Avenue, Suite 250  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: US  
; ZIP: 94306-1546  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Diskette  
; COMPUTER: IBM Compatible  
; OPERATING SYSTEM: DOS  
; SOFTWARE: Fast-SEQ for Windows Version 2.0  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/965,918  
; FILING DATE: 07-NOV-1997  
; CLASSIFICATION: 514  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Mohr, Judy M.  
; REGISTRATION NUMBER: 38,563  
; REFERENCE/DOCKET NUMBER: 5865-0009.34  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 650-324-0880  
; TELEFAX: 650-324-0960  
; INFORMATION FOR SEQ ID NO: 1:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 25 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: MVIITA/SNX-111, FIGURE 1  
US-08-965-918-1

Query Match 98.6%; Score 145; DB 2; Length 25;

Best Local Similarity 96.0%; Pred. No. 2.1e-09;  
Matches 24; Conservative 0; Mismatches 1; Indels 0;

QY 1 CKGKGCXSRMLMYDCTGSCRSKGC 25  
DB 1 CKGKGCXSRMLMYDCTGSCRSKGC 25

RESULT 8  
US-09-039-168-1  
; Sequence 1, Application US/09039168  
; Patent No. 5965534  
; GENERAL INFORMATION:  
; APPLICANT: Pang, Iok-Hou; Kapin, Michael and Hellberg,  
; APPLICANT: Mark  
; TITLE OF INVENTION: The Use of w-Conotoxin Analogs For  
; TITLE OF INVENTION: Treating Retinal and Optic Nerve Head Damage  
; NUMBER OF SEQUENCES: 7  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Alcon Laboratories, Inc.  
; STREET: 6201 South Freeway, Patent Legal  
; CITY: Fort Worth  
; STATE: Texas  
; COUNTRY: USA  
; ZIP: 76134-2099  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: 1.2 mg, 3.25" floppy disk  
; COMPUTER: Compaq Deskpro XE 560  
; OPERATING SYSTEM: Microsoft Windows for Workgroups,  
; OPERATING SYSTEM: Version 3.11  
; SOFTWARE: Microsoft Word 6.0  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/09/039,168  
; FILING DATE:  
; CLASSIFICATION:  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 08/562,142  
; FILING DATE: No. 5965534ember 22, 1995  
; ATTORNEY/AGENT INFORMATION:  
; NAME: MAYO, MICHAEL C.  
; REGISTRATION NUMBER: 38,545  
; REFERENCE/DOCKET NUMBER: 1462  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (817) 551-4321  
; TELEFAX: (817) 551-4610  
; INFORMATION FOR SEQ ID NO: 1:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 25 amino acids  
; TYPE: amino acid  
; STRANDEDNESS:  
; TOPOLOGY: unknown  
; MOLECULE TYPE:  
; DESCRIPTION: peptide  
; HYPOTHETICAL: NO  
; ANTI-SENSE: NO  
US-09-039-168-1

Query Match 98.6%; Score 145; DB 2; Length 25;  
Best Local Similarity 96.0%; Pred. No. 2.1e-09;  
Matches 24; Conservative 0; Mismatches 1; Indels 0;

QY 1 CKGKGCXSRMLMYDCTGSCRSKGC 25  
DB 1 CKGKGCXSRMLMYDCTGSCRSKGC 25

RESULT 9  
US-09-138-439-1  
; Sequence 1, Application US/09138439  
; Patent No. 5994305  
; GENERAL INFORMATION:  
; APPLICANT: JUSTICE, ALAN  
; APPLICANT: SINGH, TEJINDER



APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/09/138,439  
FILING DATE:  
CLASSIFICATION:  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 1993-04-15  
APPLICATION NUMBER: US 07/814,759  
FILING DATE: 30-DEC-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 25 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: MVIIA/SNX-111, FIGURE 1  
US-09-138-439-1

Query Match 98.6%; Score 145; DB 2; Length 25;  
Best Local Similarity 96.0%; Pred. No. 2.1e-09;  
Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
Db 1 CKGKGAKCSRLMYDCTGSCRSKGC 25

RESULT 10  
US-08-613-400A-1  
Sequence 1, Application US/08613400A  
Patent No. 6054429  
GENERAL INFORMATION:  
APPLICANT: Bowersox, S. Scott  
APPLICANT: Gadbois, Theresa  
APPLICANT: Pettus, Mark, R.  
APPLICANT: Luther, Robert, R.  
TITLE OF INVENTION: IMPROVED EPIDURAL  
TITLE OF INVENTION: METHOD OF PRODUCING ANALGESIA  
NUMBER OF SEQUENCES: 36  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Dehlinger & Associates  
STREET: 350 Cambridge Avenue, Suite 250  
CITY: Palo Alto  
STATE: CA  
COUNTRY: US  
ZIP: 94306-1546

COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: DOS  
SOFTWARE: FastSEQ for Windows Version 2.0  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/613,400A  
FILING DATE: 08-MAR-1996  
CLASSIFICATION: 514  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER:  
FILING DATE:  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0019  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 650-324-0880  
TELEFAX: 650-324-0960  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 25 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: MVIIA/SNX-111, FIGURE 1  
US-08-613-400A-1

Query Match 98.6%; Score 145; DB 3; Length 25;  
Best Local Similarity 96.0%; Pred. No. 2.1e-09;  
Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
Db 1 CKGKGAKCSRLMYDCTGSCRSKGC 25

RESULT 11  
US-09-298-017-1  
Sequence 1, Application US/09298017  
Patent No. 6087091  
GENERAL INFORMATION:  
APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/09/298,017  
FILING DATE:  
CLASSIFICATION:  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 08/049,794  
FILING DATE:  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.

REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 25 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: MWIIA/SNX-111, FIGURE 1  
US-09-298-017-1

Query Match 98.6%; Score 145; DB 3; Length 25;  
Best Local Similarity 96.0%; Pred. No. 2.1e-09;  
Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKGKAGCRLMYDCTGSCRSKGC 25  
DB 1 CKGKAGCRLMYDCTGSCRSKGC 25

RESULT 12  
US-09-392-979A-1  
Sequence 1, Application US/09392979A  
Patent No. 6136786  
GENERAL INFORMATION:  
APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
FILING DATE: 02-AUG-1990  
CLASSIFICATION: 514  
PRIOR APPLICATION NUMBER: US 07/561,766  
FILING DATE: 02-AUG-1990  
PRIOR APPLICATION DATA:  
FILING DATE: 22-NOV-1989  
APPLICATION NUMBER: US 07/440,094  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 25 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO

ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: MWIIA/SNX-111, FIGURE 1  
US-09-392-979A-1

Query Match 98.6%; Score 145; DB 3; Length 25;  
Best Local Similarity 96.0%; Pred. No. 2.1e-09;  
Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKGKAGCRLMYDCTGSCRSKGC 25  
DB 1 CKGKAGCRLMYDCTGSCRSKGC 25

RESULT 13  
US-07-789-913-11  
Sequence 11, Application US/07789913  
Patent No. 5559095  
GENERAL INFORMATION:  
APPLICANT: Miljanich, George P.  
APPLICANT: Bowersox, Stephen S.  
APPLICANT: Fox, James A.  
APPLICANT: Valentino, Karen L.  
APPLICANT: Bitner, Robert S.  
APPLICANT: Yamashiro, Donald H.  
TITLE OF INVENTION: Delayed Treatment Method of Reducing  
TITLE OF INVENTION: Ischemia-Related Neuronal Damage  
NUMBER OF SEQUENCES: 28  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
FILING DATE: 19911112  
APPLICATION NUMBER: US/07/789,913  
CLASSIFICATION: 514  
PRIOR APPLICATION DATA:  
FILING DATE: 02-AUG-1990  
PRIOR APPLICATION NUMBER: US 07/440,094  
FILING DATE: 22-NOV-1989  
APPLICATION NUMBER: US 07/440,094  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0005.30  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 11:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 26 amino acids  
TYPE: AMINO ACID  
TOPOLOGY: both  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ANTI-SENSE: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: SNX-193  
US-07-789-913-11

Query Match 98.6%; Score 145; DB 1; Length 26;  
Best Local Similarity 96.0%; Pred. No. 2.2e-09;  
Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKGKAGCRLMYDCTGSCRSKGC 25

Db 1 CKGKGAKCSRLMYDCTGSCRSKGC 25

RESULT 14  
US-07-789-913-14  
; Sequence 14, Application US/07789913  
; Patent No. 5559095  
; GENERAL INFORMATION:  
; APPLICANT: Miljanich, George P.  
; APPLICANT: Bowersox, Stephen S.  
; APPLICANT: Fox, James A.  
; APPLICANT: Valentino, Karen L.  
; APPLICANT: Bitner, Robert S.  
; APPLICANT: Yamashiro, Donald H.  
; TITLE OF INVENTION: Delayed Treatment Method of Reducing  
; TITLE OF INVENTION: Ischemia-Related Neuronal Damage  
; NUMBER OF SEQUENCES: 28  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/07/789,913  
; FILING DATE: 19911112  
; CLASSIFICATION: 514  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/561,766  
; FILING DATE: 02-AUG-1990  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/440,094  
; FILING DATE: 22-NOV-1989  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0005.30  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 14:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 27 amino acids  
; TYPE: AMINO ACID  
; TOPOLOGY: both  
; MOLECULE TYPE: peptide  
; HYPOTHETICAL: NO  
; ANTI-SENSE: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: SNX-196  
US-07-789-913-14

Query Match 98.6%; Score 145; DB 1; Length 27;  
Best Local Similarity 96.0%; Pred. No. 2.2e-09;  
Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
Db 2 CKGKGAKCSRLMYDCTGSCRSKGC 26

RESULT 15  
US-07-789-913-15  
; Sequence 15, Application US/07789913  
; Patent No. 5559095  
; GENERAL INFORMATION:

; APPLICANT: Miljanich, George P.  
; APPLICANT: Bowersox, Stephen S.  
; APPLICANT: Fox, James A.  
; APPLICANT: Valentino, Karen L.  
; APPLICANT: Bitner, Robert S.  
; APPLICANT: Yamashiro, Donald H.  
; TITLE OF INVENTION: Delayed Treatment Method of Reducing  
; TITLE OF INVENTION: Ischemia-Related Neuronal Damage  
; NUMBER OF SEQUENCES: 28  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/07/789,913  
; FILING DATE: 19911112  
; CLASSIFICATION: 514  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/561,766  
; FILING DATE: 02-AUG-1990  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/440,094  
; FILING DATE: 22-NOV-1989  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0005.30  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 15:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 27 amino acids  
; TYPE: AMINO ACID  
; TOPOLOGY: both  
; MOLECULE TYPE: peptide  
; HYPOTHETICAL: NO  
; ANTI-SENSE: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: SNX-197  
US-07-789-913-15

Query Match 98.6%; Score 145; DB 1; Length 27;  
Best Local Similarity 96.0%; Pred. No. 2.2e-09;  
Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSKGC 25  
Db 3 CKGKGAKCSRLMYDCTGSCRSKGC 27

Search completed: March 23, 2005, 00:20:48  
Job time : 20.2145 secs

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GenCore version 5.1.6  
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: March 22, 2005, 23:46:47 ; Search time 57.0132 Seconds  
(without alignments)  
144.941 Million cell updates/sec

Title: US-09-787-082a-11  
Perfect score: 147  
Sequence: 1 CKGKGXCSRLMYDCTGCSRGKC 25

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1401741 seqs, 330541175 residues

Total number of hits satisfying chosen parameters: 1401741

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : Published Applications AA.\*

1: /cgn2\_6/ptodata/2/pubpaa/US07\_PUBCOMB.pep.\*  
2: /cgn2\_6/ptodata/2/pubpaa/ECT\_NEW\_PUB.pep.\*  
3: /cgn2\_6/ptodata/2/pubpaa/US06\_NEW\_PUB.pep.\*  
4: /cgn2\_6/ptodata/2/pubpaa/US06\_PUBCOMB.pep.\*  
5: /cgn2\_6/ptodata/2/pubpaa/US07\_NEW\_PUB.pep.\*  
6: /cgn2\_6/ptodata/2/pubpaa/ECTUS\_PUBCOMB.pep.\*  
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9: /cgn2\_6/ptodata/2/pubpaa/US09A\_PUBCOMB.pep.\*  
10: /cgn2\_6/ptodata/2/pubpaa/US09B\_PUBCOMB.pep.\*  
11: /cgn2\_6/ptodata/2/pubpaa/US09C\_PUBCOMB.pep.\*  
12: /cgn2\_6/ptodata/2/pubpaa/US09\_NEW\_PUB.pep.\*  
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16: /cgn2\_6/ptodata/2/pubpaa/US10D\_PUBCOMB.pep.\*  
17: /cgn2\_6/ptodata/2/pubpaa/US10\_NEW\_PUB.pep.\*  
18: /cgn2\_6/ptodata/2/pubpaa/US11\_NEW\_PUB.pep.\*  
19: /cgn2\_6/ptodata/2/pubpaa/US60\_NEW\_PUB.pep.\*  
20: /cgn2\_6/ptodata/2/pubpaa/US60\_PUBCOMB.pep.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	126	85.7	25	10	US-09-910-082A-323
2	126	85.7	25	16	US-10-765-926-323
3	126	85.7	71	10	US-09-910-082A-38
4	126	85.7	71	16	US-10-765-926-38
5	123	83.7	25	10	US-09-910-082A-379
6	123	83.7	25	16	US-10-765-926-379
7	123	83.7	71	10	US-09-910-082A-205
8	123	83.7	71	16	US-10-765-926-205
9	120	81.6	25	10	US-09-910-082A-325
10	120	81.6	25	10	US-09-910-082A-341
11	120	81.6	25	10	US-09-910-082A-344
12	120	81.6	25	10	US-09-910-082A-375
13	120	81.6	25	16	US-10-765-926-325

14	120	81.6	25	16	US-10-765-926-341	Sequence 341, App
15	120	81.6	25	16	US-10-765-926-344	Sequence 344, App
16	120	81.6	25	16	US-10-765-926-375	Sequence 375, App
17	120	81.6	71	10	US-09-910-082A-44	Sequence 44, Appl
18	120	81.6	71	10	US-09-910-082A-103	Sequence 103, App
19	120	81.6	71	10	US-09-910-082A-112	Sequence 112, App
20	120	81.6	71	10	US-09-910-082A-190	Sequence 190, App
21	120	81.6	71	16	US-10-765-926-44	Sequence 44, Appl
22	120	81.6	71	16	US-10-765-926-103	Sequence 103, App
23	120	81.6	71	16	US-10-765-926-112	Sequence 112, App
24	120	81.6	71	16	US-10-765-926-139	Sequence 139, App
25	119	81.0	25	10	US-09-910-082A-39	Sequence 39, Appl
26	119	81.0	25	10	US-09-910-082A-346	Sequence 346, App
27	119	81.0	25	16	US-10-765-926-39	Sequence 39, Appl
28	119	81.0	25	16	US-10-765-926-346	Sequence 346, App
29	119	81.0	71	16	US-09-910-082A-118	Sequence 118, App
30	119	81.0	71	16	US-10-765-926-118	Sequence 118, App
31	116	78.9	25	10	US-09-910-082A-104	Sequence 104, App
32	116	78.9	25	10	US-09-910-082A-378	Sequence 378, App
33	116	78.9	25	10	US-09-910-082A-396	Sequence 396, App
34	116	78.9	25	10	US-09-910-082A-403	Sequence 403, App
35	116	78.9	25	16	US-10-765-926-104	Sequence 104, App
36	116	78.9	25	16	US-10-765-926-378	Sequence 378, App
37	116	78.9	25	16	US-10-765-926-396	Sequence 396, App
38	116	78.9	25	16	US-10-765-926-403	Sequence 403, App
39	116	78.9	27	10	US-09-910-082A-343	Sequence 343, App
40	116	78.9	27	16	US-10-765-926-343	Sequence 343, App
41	116	78.9	71	10	US-09-910-082A-202	Sequence 202, App
42	116	78.9	71	10	US-09-910-082A-260	Sequence 260, App
43	116	78.9	71	10	US-09-910-082A-270	Sequence 270, App
44	116	78.9	71	16	US-10-765-926-202	Sequence 202, App
45	116	78.9	71	16	US-10-765-926-260	Sequence 260, App

#### ALIGNMENTS

#### RESULT 1

US-09-910-082A-323  
; Sequence 323, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 323  
; LENGTH: 25  
; TYPE: PRT  
; ORGANISM: *Conus aurisiacus*  
US-09-910-082A-323

Query Match 85.7%; Score 126; DB 10; Length 25;  
Best Local Similarity 80.0%; Pred. No. 4, 4e-08;  
Matches 20; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 1 CKGKGXCSRLMYDCTGCSRGKC 25

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Db      1 CKGKGKPCSRISYNCCTGSCRSKGC 25
||||| |||: |:|||||
; TYPE: PRT
; ORGANISM: Conus aurisiacus
US-09-910-082A-38

Query Match      85.7%; Score 126; DB 10; Length 71;
Best Local Similarity 80.0%; Pred. No. 1e-07;
Matches 20; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

Qy      1 CKGKGACSRMLYDCTGSCRSKGC 25
Db      46 CKGKGKPCSRISYNCCTGSCRSKGC 70

RESULT 4
US-10-765-926-38
; Sequence 38, Application US/10765926
; Publication No. US20040132663A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/10765,926
; CURRENT FILING DATE: 2004-01-29
; PRIOR FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: Patent in version 3.0
; SEQ ID NO 38
; LENGTH: 71
; TYPE: PRT
; ORGANISM: Conus aurisiacus
US-10-765-926-38

Query Match      85.7%; Score 126; DB 16; Length 71;
Best Local Similarity 80.0%; Pred. No. 1e-07;
Matches 20; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

Qy      1 CKGKGACSRMLYDCTGSCRSKGC 25
Db      46 CKGKGKPCSRISYNCCTGSCRSKGC 70

RESULT 5
US-09-910-082A-379
; Sequence 379, Application US/09910082A
; Publication No. US20030119731A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/09/910,082A
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; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 379  
; LENGTH: 25  
; TYPE: PRT  
; ORGANISM: *Conus monachus*  
US-09-910-082A-379

Query Match 83.7%; Score 123; DB 10; Length 25;  
Best Local Similarity 76.0%; Pred. No. 9.9e-08;  
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKKGXACSRMLYDCCTGSCRSKGC 25  
|||||: |||: |||: |||: |||: |||  
DB 1 CKKGSSCSRTWYNCCTGSCNRKGC 25

RESULT 6  
US-10-765-926-379  
; Sequence 379, Application US/10765926  
; Publication No. US20040132663A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/10/765,926  
; CURRENT FILING DATE: 2004-01-29  
; PRIOR APPLICATION NUMBER: US 09/910,082  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 379  
; LENGTH: 25  
; TYPE: PRT  
; ORGANISM: *Conus monachus*  
US-10-765-926-379

Query Match 83.7%; Score 123; DB 16; Length 25;  
Best Local Similarity 76.0%; Pred. No. 9.9e-08;  
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKKGXACSRMLYDCCTGSCRSKGC 25  
|||||: |||: |||: |||: |||: |||  
DB 1 CKKGSSCSRTWYNCCTGSCNRKGC 25

RESULT 7  
US-09-910-082A-205  
; Sequence 205, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael

; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 205  
; LENGTH: 71  
; TYPE: PRT  
; ORGANISM: *Conus monachus*  
US-09-910-082A-205

Query Match 83.7%; Score 123; DB 10; Length 71;  
Best Local Similarity 76.0%; Pred. No. 2.3e-07;  
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKKGXACSRMLYDCCTGSCRSKGC 25  
|||||: |||: |||: |||: |||: |||  
DB 46 CKKGSSCSRTWYNCCTGSCNRKGC 70

RESULT 8  
US-10-765-926-205  
; Sequence 205, Application US/10765926  
; Publication No. US20040132663A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/10/765,926  
; CURRENT FILING DATE: 2004-01-29  
; PRIOR APPLICATION NUMBER: US 09/910,082  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 205  
; LENGTH: 71  
; TYPE: PRT  
; ORGANISM: *Conus monachus*  
US-10-765-926-205

Query Match 83.7%; Score 123; DB 16; Length 71;  
Best Local Similarity 76.0%; Pred. No. 2.3e-07;  
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKKGXACSRMLYDCCTGSCRSKGC 25  
|||||: |||: |||: |||: |||: |||  
DB 46 CKKGSSCSRTWYNCCTGSCNRKGC 70

RESULT 9  
US-09-910-082A-325  
; Sequence 325, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 325  
; LENGTH: 25  
; TYPE: PRT  
; ORGANISM: Conus aurisiacus  
US-09-910-082A-325

Query Match 81.6%; Score 120; DB 10; Length 25;  
Best Local Similarity 76.0%; Pred. No. 2.2e-07;  
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKKGXACSRMLYDCTGSCRSKGC 25  
DB 1 CKAKGPCSRIAYNCTGSCRSKGC 25

RESULT 10  
US-09-910-082A-341  
; Sequence 341, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 341  
; LENGTH: 25  
; TYPE: PRT  
; ORGANISM: Conus consors  
US-09-910-082A-341

Query Match 81.6%; Score 120; DB 10; Length 25;  
Best Local Similarity 76.0%; Pred. No. 2.2e-07;

Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;  
QY 1 CKKGXACSRMLYDCTGSCRSKGC 25  
DB 1 CKGTGKPCSRIAYNCTGSCRSKGC 25

RESULT 11  
US-09-910-082A-344  
; Sequence 344, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 344  
; LENGTH: 25  
; TYPE: PRT  
; ORGANISM: Conus consors  
US-09-910-082A-344

Query Match 81.6%; Score 120; DB 10; Length 25;  
Best Local Similarity 76.0%; Pred. No. 2.2e-07;  
Matches 19; Conservative 0; Mismatches 6; Indels 0; Gaps 0;

QY 1 CKKGXACSRMLYDCTGSCRSKGC 25  
DB 1 CKKGASCHRTSYDCTGSCNRKGC 25

RESULT 12  
US-09-910-082A-375  
; Sequence 375, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 375



```
; LENGTH: 25
; TYPE: PRT
; ORGANISM: Conus magus
US-09-910-082a-375

Query Match      81.6%; Score 120; DB 10; Length 25;
Best Local Similarity 76.0%; Pred. No. 2.2e-07;
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

Qy 1 CKKGAGXCSRLMYDCTGTCRSGKC 25
    ||| ||| : ||| ||| |||
Db 1 CKGTGKPCSRIAYNCTGTCRSGKC 25

RESULT 13
US-10-765-926-325
; Sequence 325, Application US/10765926
; Publication No. US20040132663A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/10/765,926
; CURRENT FILING DATE: 2004-01-29
; PRIOR APPLICATION NUMBER: US 09/910,082
; PRIOR FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 325
; LENGTH: 25
; TYPE: PRT
; ORGANISM: Conus aurisiacus
US-10-765-926-325

Query Match      81.6%; Score 120; DB 16; Length 25;
Best Local Similarity 76.0%; Pred. No. 2.2e-07;
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

Qy 1 CKKGAGXCSRLMYDCTGTCRSGKC 25
    ||| ||| : ||| ||| |||
Db 1 CKAKGKPCSRIAYNCTGTCRSGKC 25

RESULT 14
US-10-765-926-341
; Sequence 341, Application US/10765926
; Publication No. US20040132663A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/10/765,926
; CURRENT FILING DATE: 2004-01-29
; PRIOR APPLICATION NUMBER: US 09/910,082
; PRIOR FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 325
; LENGTH: 25
; TYPE: PRT
; ORGANISM: Conus aurisiacus
US-10-765-926-325

Query Match      81.6%; Score 120; DB 16; Length 25;
Best Local Similarity 76.0%; Pred. No. 2.2e-07;
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

Qy 1 CKKGAGXCSRLMYDCTGTCRSGKC 25
    ||| ||| : ||| ||| |||
Db 1 CKAKGKPCSRIAYNCTGTCRSGKC 25

RESULT 15
US-10-765-926-344
; Sequence 344, Application US/10765926
; Publication No. US20040132663A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/10/765,926
; CURRENT FILING DATE: 2004-01-29
; PRIOR APPLICATION NUMBER: US 09/910,082
; PRIOR FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 344
; LENGTH: 25
; TYPE: PRT
; ORGANISM: Conus consors
US-10-765-926-344

Query Match      81.6%; Score 120; DB 16; Length 25;
Best Local Similarity 76.0%; Pred. No. 2.2e-07;
Matches 19; Conservative 0; Mismatches 6; Indels 0; Gaps 0;

Qy 1 CKKGAGXCSRLMYDCTGTCRSGKC 25
    ||| ||| : ||| ||| |||
Db 1 CKKGAGSCHRTSYDCTGTCRSGKC 25

Search completed: March 23, 2005, 00:35:01
Job time : 57.0846 secs
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:16:20 ; Search time 14.0264 Seconds  
(without alignments)  
171.492 Million cell updates/sec

Title: US-09-787-082A-11  
Perfect score: 147  
Sequence: 1 CKGKXCSRLMYDCCGSCRSKGC 25  
Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues  
Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : PIR 79:\*  
1: pir1:\*  
2: pir2:\*  
3: pir3:\*  
4: pir4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	145	98.6	25	2 JH0700	omega-conotoxin MV
2	120	81.6	25	2 JH0701	omega-conotoxin MV
3	111.5	75.9	29	2 JH0699	omega-conotoxin MV
4	104	70.7	29	2 A58537	omega-conotoxin MV
5	97.5	66.3	26	2 C43379	omega-conotoxin SV
6	70.5	48.0	29	2 A43620	omega-conotoxin GV
7	70.5	48.0	29	2 B43620	omega-conotoxin GV
8	58	39.5	318	2 T05569	hypothetical prote
9	56.5	38.4	73	1 NTKN6G	omega-conotoxin GV
10	56	38.1	1506	2 A96808	hypothetical prote
11	56	38.1	2664	2 T28626	variant-specific s
12	55	37.4	78	2 S12513	delta-conotoxin Tx
13	54.5	37.1	72	2 S32417	metallothionein 10
14	54	36.7	27	2 S19619	delta-conotoxin Tx
15	54	36.7	615	1 KFHU12	coagulation factor
16	53	36.1	686	2 T25987	hypothetical prote
17	52	35.4	558	2 JC5204	60K cysteine-rich
18	51.5	35.0	52	2 T10299	metallothionein 3
19	51.5	35.0	66	2 S58086	metallothionein 3
20	51.5	35.0	68	2 I67866	growth inhibitory
21	51.5	35.0	68	2 A46034	metallothionein 3
22	51.5	35.0	491	2 S52920	disintegrin (EC 3.
23	51.5	35.0	544	2 S52477	disintegrin (EC 3.
24	51.5	35.0	1589	2 C44766	defective chorion-
25	51	34.7	24	2 B43379	omega-conotoxin SV
26	51	34.7	64	2 A25775	metallothionein A
27	51	34.7	64	2 A33825	metallothionein A
28	51	34.7	581	2 C96538	hypothetical prote
29	51	34.7	2318	2 S45306	notch 3 protein -

Query Match 98.6% ; Score 145; DB 2; Length 25;  
Best Local Similarity 96.0% ; Pred. No. 2.7e-10;

ALIGNMENTS

RESULT 1

JH0700  
omega-conotoxin MVIIA [validated] - cone shell (Conus magus)  
C:Species: Conus magus (magus cone)  
C>Date: 17-Apr-1993 #sequence revision 17-Apr-1993 #text\_change 09-Jul-2004  
C:Accession: JH0700; C60133; A34115  
R:Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadasdi, L.; Ramachandran, J.; M; Neuron 9, 69-77, 1992  
A>Title: A new conus peptide ligand for mammalian presynaptic Ca2+ channels.  
A:Reference number: JH0699; MUID:92337922; PMID:1352986  
A:Accession: JH0700  
A>Status: nucleic acid sequence not shown  
A:Molecule type: mRNA  
A:Residues: 1-25 <HIL>  
A:Cross-references: UNIPROT:P05484  
R:Olivera, B.M.; Gray, W.R.; Zeikus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Santos Science 230, 1338-1343, 1985  
A>Title: Peptide neurotoxins from fish-hunting cone snails.  
A:Reference number: A43620; MUID:86070213; PMID:4071055  
A:Accession: C60133  
A:Molecule type: protein  
A:Residues: 1-25 <OLI>  
R:Olivera, B.M.; Cruz, L.J.; de Santos, V.; LeCheminant, G.W.; Griffin, D.; Zeikus, R.; M Biochemistry 26, 2086-2090, 1987  
A>Title: Neuronal calcium channel antagonists. Discrimination between calcium channel sub A:Reference number: A34115; MUID:87299637; PMID:2441741  
A:Contents: annotation  
R:Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.  
submitted to the Brookhaven Protein Data Bank, August 1996  
A:Reference number: A67648; PDB:1MWI  
A:Contents: annotation; conformation by (1)H-NMR, residues 1-25  
R:Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.  
J. Mol. Biol. 263, 297-310, 1996  
A>Title: A consensus structure for omega-conotoxins with different selectivities for volt A:Reference number: A58619; MUID:97070382; PMID:8913308  
R:Kohn, T.; Kim, J.I.; Kobayashi, K.; Kodera, Y.; Maeda, T.; Sato, K.  
submitted to the Brookhaven Protein Data Bank, April 1995  
A:Reference number: A66296; PDB:1OMG  
A:Contents: annotation; conformation by (1)H-NMR, residues 1-25  
R:Kohn, T.; Kim, J.I.; Kobayashi, K.; Kodera, Y.; Maeda, T.; Sato, K.  
Biochemistry 34, 10256-10265, 1995  
A>Title: Three-dimensional structure in solution of the calcium channel blocker omega-con A:Reference number: A58627; MUID:95367555; PMID:7640281  
A:Contents: annotation; conformation by (1)H-NMR  
C:Superfamily: omega-conotoxin  
C:Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh F:1-16,8-20,15-25/Disulfide bonds: #status predicted  
F:25/Modified site: amidated carboxyl end (Cys) #status experimental

30 51 34.7 2321 2 S78549  
31 51 34.7 2524 2 A35844  
32 50.5 34.4 124 2 H86909  
33 50.5 34.4 194 2 H64392  
34 50 34.0 65 2 A38739  
35 50 34.0 295 2 E72462  
36 50 34.0 479 2 A61368  
37 50 34.0 495 2 I57463  
38 50 34.0 813 2 T21192  
39 50 34.0 1360 2 F96596  
40 49.5 33.7 72 2 S39416  
41 49.5 33.7 433 2 JC7678  
42 49.5 33.7 811 2 S36109  
43 49.5 33.7 1106 2 T44598  
44 49.5 33.7 1106 2 T13938  
45 49 33.3 68 2 S44391

notch3 protein - h  
Xotch protein - Af  
hypothetical prote  
heterodisulfide re  
metallothionein -  
probable lipoic ac  
keratin type II, h  
keratin type II -  
hypothetical prote  
metallothionein 10  
RING finger protei  
osteoblast-specifi  
hypothetical prote  
gene shuttle craft  
metallothionein 3

Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CKKGAKCSRLMYDCTGSCRSKGC 25  
|||||  
DB 1 CKKGAKCSRLMYDCTGSCRSKGC 25

RESULT 2  
JH0701  
omega-conotoxin MVIIIB - cone shell (Conus magus)  
C;Species: Conus magus (magus cone)  
C;Date: 17-Apr-1993 #sequence\_revision 17-Apr-1993 #text\_change 09-Jul-2004  
C;Accession: JH0701; B34115  
R;Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadaesi, L.; Ramachandran, J.; Ramachandran, J.; 69-77, 1992  
A;Title: A new conus peptide ligand for mammalian presynaptic Ca2+ channels.  
A;Reference number: JH0699; MUID:92337922; PMID:1352986  
A;Accession: JH0701  
A;Status: nucleic acid sequence not shown  
A;Molecule type: mRNA  
A;Residues: 1-25 <HIL>  
A;Cross-references: UNIPROT:P05485  
R;Olivera, B.M.; Cruz, L.J.; de Santos, V.; LeCheminant, G.W.; Griffin, D.; Zeikus, R.; Biochem. Biophys. Res. Commun. 206, 2086-2090, 1997  
A;Title: Neuronal calcium channel antagonists. Discrimination between calcium channel subtypes.  
A;Reference number: A34115; MUID:87299637; PMID:2441741  
A;Accession: B34115  
A;Molecule type: protein  
A;Residues: 1-25 <OLI>  
C;Superfamily: omega-conotoxin  
C;Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inhibitor  
F;1-16,8-20,15-25/Dsulfide bonds: #status predicted  
F;25/Modified site: amidated carboxyl end (Cys) #status predicted

Query Match 81.6%; Score 120; DB 2; Length 25;  
Best Local Similarity 76.0%; Pred. No. 1.8e-07;  
Matches 19; Conservative 0; Mismatches 6; Indels 0; Gaps 0;

QY 1 CKKGAKCSRLMYDCTGSCRSKGC 25  
|||||  
DB 1 CKKGAKCSRLMYDCTGSCRSKGC 25

RESULT 3  
JH0699  
omega-conotoxin MVIIIC precursor [validated] - cone shell (Conus magus) (fragment)  
C;Species: Conus magus (magus cone)  
C;Date: 17-Apr-1993 #sequence\_revision 11-Apr-1997 #text\_change 09-Jul-2004  
C;Accession: JH0699; PC2380  
R;Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadaesi, L.; Ramachandran, J.; Ramachandran, J.; 69-77, 1992  
A;Title: A new conus peptide ligand for mammalian presynaptic Ca2+ channels.  
A;Reference number: JH0699; MUID:92337922; PMID:1352986  
A;Accession: JH0699  
A;Molecule type: mRNA  
A;Residues: 1-29 <HIL>  
A;Cross-references: UNIPROT:P37300; GB:S40826; NID:G252126; PID:AB22674.1; PID:G252127  
R;Nemoto, N.; Kubo, S.; Yoshida, T.; Chino, N.; Kimura, T.; Sakakibara, S.; Kyogoku, Y.; Biochem. Biophys. Res. Commun. 207, 695-700, 1995  
A;Title: Solution structure of omega-conotoxin MVIIIC determined by NMR.  
A;Reference number: PC2380; MUID:95169113; PMID:7864862  
A;Accession: PC2380  
A;Molecule type: protein  
A;Residues: 3-28 <NEM>  
R;Farr-Jones, S.; Basus, V.J.  
Submitted to the Brookhaven Protein Data Bank, December 1994  
A;Reference number: A66297; PDB:1OMN  
A;Contents: annotation; conformation by (1)H-NMR, residues 3-28  
R;Farr-Jones, S.; Miljanich, G.P.; Nadaesi, L.; Ramachandran, J.; Basus, V.J. J. Mol. Biol. 248, 106-124, 1995  
A;Title: Solution structure of omega-conotoxin MVIIIC, a high affinity of P-type calcium channel ligand.  
A;Reference number: A58582; MUID:95248539; PMID:7731037  
A;Contents: annotation; conformation by (1)H-NMR

F:1-16,8-20,15-26/Disulfide bonds: #status predicted  
F:26/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 66.3%; Score 97.5; DB 2; Length 26;  
Best Local Similarity 65.4%; Pred. No. 6.6e-05;  
Matches 17; Conservative 2; Mismatches 6; Indels 1; Gaps 1;

QY 1 CKGKGXCSRLMYDCTGSC--RSQKC 25  
||| ||| : ||||| |||||  
DB 1 CKLKGQCKRTSYDCCSGSGRSKC 26

## RESULT 6

A43620

omega-conotoxin GVIIA - cone shell (Conus geographus)

N:Alternate names: shaker peptide GVIIA

C:Species: Conus geographus (Geography cone)

C:Date: 11-Dec-1992 #sequence\_revision 11-Dec-1992 #text\_change 09-Jul-2004

C:Accession: A43620

R:Olivera, B.M.; Gray, W.R.; Zeikus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Santo

Science 230, 1338-1343, 1985

A:Title: Peptide neurotoxins from fish-hunting cone snails.

A:Reference number: A43620; MUID:86070213; PMID:4071055

A:Accession: A43620

A:Molecule type: protein

A:Residues: 1-29 &lt;OLI&gt;

A:Cross-references: UNIPROT:P05483

C:Superfamily: omega-conotoxin

C:Keywords: acetylcholine release inhibition; calcium channel inhibitor; hydroxyproline;

F:1-16,8-19,15-26/Disulfide bonds: #status predicted

F:4,7/Modified site: 4-hydroxyproline (Pro) #status experimental

Query Match 48.0%; Score 70.5; DB 2; Length 29;  
Best Local Similarity 59.3%; Pred. No. 0.082;  
Matches 16; Conservative 0; Mismatches 8; Indels 3; Gaps 2;

QY 1 CKGKGXCSRLMYDCTGSC--RSQKC 25  
||| ||| ||||| |||||  
DB 1 CKSPGTPCSGRMRDCT--SCLYSNKC 26

## RESULT 7

B43620

omega-conotoxin GVIIA - cone shell (Conus geographus)

N:Alternate names: shaker peptide GVIIA

C:Species: Conus geographus (Geography cone)

C:Date: 11-Dec-1992 #sequence\_revision 11-Dec-1992 #text\_change 09-Jul-2004

C:Accession: B43620

R:Olivera, B.M.; Gray, W.R.; Zeikus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Santo

Science 230, 1338-1343, 1985

A:Title: Peptide neurotoxins from fish-hunting cone snails.

A:Reference number: A43620; MUID:86070213; PMID:4071055

A:Accession: B43620

A:Molecule type: protein

A:Residues: 1-29 &lt;OLI&gt;

A:Cross-references: UNIPROT:P05483

C:Superfamily: omega-conotoxin

C:Keywords: acetylcholine release inhibition; calcium channel inhibitor; hydroxyproline;

F:1-16,8-19,15-26/Disulfide bonds: #status predicted

F:4,7/Modified site: 4-hydroxyproline (Pro) #status experimental

Query Match 48.0%; Score 70.5; DB 2; Length 29;  
Best Local Similarity 59.3%; Pred. No. 0.082;  
Matches 16; Conservative 0; Mismatches 8; Indels 3; Gaps 2;

QY 1 CKGKGXCSRLMYDCTGSC--RSQKC 25  
||| ||| ||||| |||||  
DB 1 CKSPGTPCSGRMRDCT--SCLYSNKC 26

## RESULT 8

T05569

hypothesized protein F22K18.150 - Arabidopsis thaliana

C:Species: Arabidopsis thaliana (mouse-ear cress)  
C:Date: 23-Apr-1999 #sequence\_revision 23-Apr-1999 #text\_change 09-Jul-2004  
C:Accession: T05569  
R:Bevan, M.; Wedler, H.; Wedler, E.; Wambutt, R.; Hoheisel, J.; Mayer, K.F.;  
submitted to the Protein Sequence Database, February 1999  
A:Reference number: Z15419  
A:Accession: T05569  
A:Molecule type: DNA  
A:Residues: 1-318 <BEV>  
A:Cross-references: UNIPROT:Q9SB60; EMBL:AL035356  
A:Experimental source: cultivar Columbia; BAC clone F22K18  
C:Genetics:  
A:Map position: 4  
A:Note: F22K18.150  
C:Superfamily: delta(2)-isopentenylpyrophosphate transferase

Query Match 39.5%; Score 58; DB 2; Length 318;  
Best Local Similarity 69.2%; Pred. No. 9;  
Matches 9; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 4 KGXCSRLMYDCC 16  
||| ||| |||||  
DB 127 KGSICSELKYDCC 139

## RESULT 9

NTKN6G

omega-conotoxin GVIB precursor [validated] - cone shell (Conus geographus)

N:Alternate names: shaker peptide GVIB

N:Contains: omega-conotoxin GVIA; omega-conotoxin GVIC

C:Species: Conus geographus (Geography cone)

C:Date: 25-Feb-1985 #sequence\_revision 23-Mar-1995 #text\_change 09-Jul-2004

C:Accession: A44006; A60133; B60133; A01785

R:Colledge, C.J.; Hunsperger, J.P.; Imperial, J.S.; Hillyard, D.R.

Toxicol 30, 1111-1116, 1992

A:Title: Precursor structure of omega-conotoxin GVIA determined from a cDNA clone.

A:Reference number: A44006; MUID:93069266; PMID:1440648

A:Accession: A44006

A:Molecule type: mRNA

A:Residues: 1-73 &lt;COL&gt;

A:Cross-references: UNIPROT:P01522; GB:M84612; NID:gi56520; PIDN:AAA81590.1; PID:gi070393

A:Experimental source: venom duct

A:Note: sequence extracted from NCBI backbone (NCBIN:119531, NCBI:P:119532)

R:Olivera, B.M.; Gray, W.R.; Zeikus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Santos

Science 230, 1338-1343, 1985

A:Title: Peptide neurotoxins from fish-hunting cone snails.

A:Reference number: A43620; MUID:86070213; PMID:4071055

A:Accession: A60133

A:Molecule type: protein

A:Residues: 46-73 &lt;OLI&gt;

A:Accession: B60133

A:Molecule type: protein

A:Residues: 46-71 &lt;OL2&gt;

R:Olivera, B.M.; McIntosh, J.M.; Cruz, L.J.; Luque, P.A.; Gray, W.R.

Biochemistry 23, 5087-5090, 1984

A:Title: Purification and sequence of a presynaptic peptide toxin from Conus geographus

A:Reference number: A01785; MUID:85072796; PMID:6509012

A:Accession: A01785

A:Molecule type: protein

A:Residues: 46-72 &lt;OL3&gt;

R:Nishinuchi, Y.; Kumagaye, K.; Noda, Y.; Watanabe, T.X.; Sakakibara, S.

Biopolymers 25, S61-S68, 1986

A:Title: Synthesis and secondary-structure determination of omega-conotoxin GVIA: a 27-pe

A:Reference number: A49017; MUID:87049928; PMID:3779030

A:Contents: annotation

A:Note: disulfide bonds determined and confirmed by chemical synthesis

R:Davis, J.H.; Bradley, E.K.; Miljanich, G.P.; Nadasdi, L.; Ramachandran, J.; Basu, V.J.

submitted to the Brookhaven Protein Data Bank, April 1993

A:Reference number: A51894; PDB:1OMC

A:Contents: annotation; conformation by (1)H-NMR, residues 46-72

R:Davis, J.H.; Bradley, E.K.; Miljanich, G.P.; Nadasdi, L.; Ramachandran, J.; Basu, V.J.

Biochemistry 32, 7396-7405, 1993

A:Title: Solution structure of omega-conotoxin GVIA using 2-D NMR spectroscopy and relax



A:Accession: S39417  
 A:Molecule type: protein  
 A:Residues: 1-72 <MAC>  
 A:Cross-references: UNIPROT:P80247  
 C:Superfamily: metallochionein  
 C:Keywords: metal binding

Query Match 37.1%; Score 54.5; DB 2; Length 72;

Best Local Similarity 44.0%; Pred. No. 9.2;

Matches 11; Conservative 1; Mismatches 12; Indels 1; Gaps 1;

QY 1 CKKGKXGACRLMYDC-CTGSCRSKG 24

DB 31 CSAGCKCKGCKVCKCSGCECGK 55

# RESULT 14

S19619

delta-conotoxin TxIB - cone shell (Conus textile)

C:Species: Conus textile (cloth-of-gold cone)

C>Date: 19-Mar-1997 #sequence\_revision 11-Apr-1997 #text\_change 09-Jul-2004

A:Accession: S19619

R:Paiznilber, M.; Gordon, D.; Hasson, A.; Spira, M.E.; Zlotkin, E.

A:Title: Mollusc-specific toxins from the venom of Conus textile neovicarius.

A:Reference number: S19553; MUID:92104183; PMID:1761058

A:Accession: S19619

A:Molecule type: protein

A:Residues: 1-27 <PAI>

A:Cross-references: UNIPROT:P24159

C:Superfamily: omega-conotoxin

C:Keywords: neurotoxin; sodium channel inhibitor; venom

F:2-17,9-21,16-26/Disulfide bonds: #status predicted

Query Match 36.7%; Score 54; DB 2; Length 27;

Best Local Similarity 45.0%; Pred. No. 5.9;

Matches 9; Conservative 2; Mismatches 9; Indels 0; Gaps 0;

QY 1 CKKGKXGACRLMYDCTGSC 20

DB 2 CKQSGEMCNVLQNCDDGVC 21

# RESULT 15

KFHU12

coagulation factor XIIa (EC 3.4.21.38) precursor [validated] - human

N:Alternate names: Hageman factor (activated)

C:Species: Homo sapiens (man)

C>Date: 27-Nov-1985 #sequence\_revision 30-Jun-1991 #text\_change 09-Jul-2004

A:Accession: A29411; A26814; A00930; A25191; A22248; A21037

R:Cool, D.E.; MacGillivray, R.T.A.

J. Biol. Chem. 262, 13662-13673, 1987

A:Title: Characterization of the human blood coagulation factor XII gene. Intron/exon ge

A:Reference number: A29411; MUID:88007593; PMID:2888762

A:Accession: A29411

A:Molecule type: DNA

A:Residues: 1-615 <COO>

A:Cross-references: UNIPROT:P00748; GB:M17466; GB:J02807; NID:g180355; PIDN:AA59490.1;

R:Tripodi, M.; Citarella, F.; Guida, S.; Galeffi, P.; Pantoni, A.; Cortese, R.

Nucleic Acids Res. 14, 3146, 1986

A:Title: cDNA sequence coding for human coagulation factor XII (Hageman).

A:Reference number: A26814; MUID:86176794; PMID:3754331

A:Accession: A26814

A:Molecule type: mRNA

A:Residues: 4-615 <TRI>

A:Cross-references: GB:M31315; NID:g182291; PIDN:AAA70225.1; PID:g182292

R:Cool, D.E.; Edgell, C.J.S.; Louie, G.V.; Zoller, M.J.; Brayer, G.D.; MacGillivray, R.T.

J. Biol. Chem. 260, 13666-13676, 1985

A:Title: Characterization of human blood coagulation factor XII cDNA. Prediction of the

A:Reference number: A00930; MUID:86033830; PMID:3877053

A:Accession: A00930

A:Molecule type: mRNA

A:Residues: 14-332,'S',334-615 <CO2>

A:Cross-references: GB:M11723; NID:g180358; PIDN:AAA51986.1; PID:g180359

R:Que, B.G.; Davie, E.W.

Biochemistry 25, 1525-1528, 1986

A:Title: Characterization of a cDNA coding for human factor XII (Hageman factor).

A:Reference number: A25191; MUID:86216049; PMID:3011063

A:Accession: A25191

A:Molecule type: mRNA

A:Residues: 146-378,'G',380-615 <QUB>

A:Cross-references: GB:M31314; NID:g180360; PIDN:AAA70224.1; PID:g180361

R:McMullen, B.A.; Fujikawa, K.

J. Biol. Chem. 260, 5328-5341, 1985

A:Title: Amino acid sequence of the heavy chain of human alpha-factor XIIa (activated Ha

A:Reference number: A22248; MUID:85182674; PMID:3886654

A:Accession: A22248

A:Molecule type: protein

A:Residues: 20-379 <MCW>

R:Fujikawa, K.; McMullen, B.A.

J. Biol. Chem. 258, 10924-10933, 1983

A:Title: Amino acid sequence of human beta-factor XIIa.

A:Reference number: A21037; MUID:83291041; PMID:6604055

A:Accession: A21037

A:Molecule type: protein

A:Residues: 354-362;373-615 <FUJ>

R:Harris, R.J.; Ling, V.T.; Spellman, M.W.

J. Biol. Chem. 267, 5102-5107, 1992

A:Title: O-linked fucose is present in the first epidermal growth factor domain of factor

A:Reference number: A44606; MUID:92184750; PMID:1544894

A:Contents: annotation; carbohydrate binding site

C:Genetics:

A:Gene: GDB:F12

A:Cross-references: GDB:119892; OMIM:234000

A:Map position: 5q34-qter

A:Introns: 19/3; 39/1; 72/2; 96/1; 133/1; 177/1; 212/1; 267/2; 340/1; 417/2; 463/1; 511/3

A:Complex: factor XII, prekallikrein, and HMW kininogen form a complex bound to anionic s

C:Function:

A:Description: factor XIIa catalyzes the proteolytic activation of plasminogen, plasma p

kinin

A:Pathway: blood coagulation; fibrinolysis

C:Superfamily: coagulation factor XII; EGF homology; fibronectin type I repeat homology;

C:Keywords: blood coagulation; fibrinolysis; glycoprotein; hydrolase; kringle; plasma; se

F:1-19/Domain: signal sequence #status predicted <SIG>

F:20-372,373-615/Product: coagulation factor XIIa, alpha form #status experimental <A12>

F:47-88/Domain: fibronectin type II repeat homology <FB2>

F:98-130/Domain: EGF homology <EG1>

F:135-170/Domain: fibronectin type I repeat homology <1F1>

F:178-209/Domain: EGF homology <EG2>

F:217-295/Domain: kringle homology <KRG>

F:298-356/Region: proline-rich

F:354-362,373-615/Product: coagulation factor XIIa, beta form #status experimental <B12>

F:373-603/Domain: trypsin homology <TRY>

F:98-110,104-119,121-130,135-163,161-170,178-189,183-198,200-209,217-295,238-277,266-290,

F:109/Binding site: carbohydrate (Thr) (covalent) #status experimental

F:249,433/Binding site: carbohydrate (Asn) (covalent) #status experimental

F:299,305,328,329,337/Binding site: carbohydrate (Thr) (covalent) #status predicted

F:308/Binding site: carbohydrate (Ser) (covalent) #status predicted

F:412,461,563/Active site: His, Asp, Ser #status predicted

QY 1 CKKGKXGACRLMYDCC-TGSC-RSGKC 25

DB 163 CKGPDHQCRLASQACRTNCLHGRC 189

Query Match 36.7%; Score 54; DB 1; Length 615;

Best Local Similarity 44.4%; Pred. No. 38;

Matches 12; Conservative 1; Mismatches 12; Indels 2; Gaps 2;

Search completed: March 22, 2005, 22:54:17

Job time : 15.0264 secs





GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:45:36 ; Search time 66.7492 Seconds  
(without alignments)  
191.792 Million cell updates/sec

Title: US-09-787-082A-11  
Perfect score: 147  
Sequence: 1 CKGKAGCSRLMYDCTGCSRGKC 25

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : UniProt.03.\*

1: uniprot\_sprot.\*

2: uniprot\_trembl.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match %	Length	DB	ID	Description
1	145	98.6	71	1	CKXA CONMA	P05484 conus magus
2	127	86.4	66	2	Q9N633	Q9n633 conus catus
3	127	86.4	66	2	Q9NCW3	Q9ncw3 conus catus
4	127	86.4	66	2	Q9NCW5	Q9ncw5 conus catus
5	127	86.4	66	2	Q9NCW6	Q9ncw6 conus catus
6	124	84.4	25	1	CKXB CONCT	P58918 conus catus
7	122.5	83.3	26	1	CKXC CONCT	P58919 conus catus
8	120	81.6	25	1	CKXB CONMA	P05485 conus magus
9	120	81.6	66	2	Q9NCV5	Q9ncv5 conus catus
10	120	81.6	66	2	Q9NCW4	Q9ncw4 conus catus
11	117	79.6	66	2	Q9NCV7	Q9ncv7 conus catus
12	116	78.9	66	2	Q9N6N6	Q9n6n6 conus stria
13	116	78.9	66	2	Q9NCU1	Q9ncu1 conus stria
14	116	78.9	66	2	Q9NCV0	Q9ncv0 conus stria
15	116	78.9	66	2	Q9NCV4	Q9ncv4 conus stria
16	115	78.2	66	2	Q9N625	Q9n625 conus catus
17	115	78.2	66	2	Q9N628	Q9n628 conus catus
18	115	78.2	66	2	Q9NCW2	Q9ncw2 conus catus
19	115	78.2	71	1	CKXA CONCT	P58917 conus catus
20	114	77.6	27	1	CKX07 CONCN	P58916 conus conso
21	114	77.6	66	2	Q9N6F7	Q9n6f7 conus catus
22	114	77.6	66	2	Q9NCV1	Q9ncv1 conus stria
23	114	77.6	66	2	Q9NCV2	Q9ncv2 conus stria
24	114	77.6	66	2	Q9NCV3	Q9ncv3 conus stria
25	114	77.6	66	2	Q9NCW1	Q9ncw1 conus catus
26	114	77.6	71	1	CKX03 CONST	Q9xzk2 conus stria
27	111.5	75.9	29	1	CKXC CONMA	P37300 conus magus
28	108	73.5	73	1	CKXD CONCT	P58920 conus catus
29	104	70.7	29	1	CKXD CONMA	Q26350 conus magus
30	104	70.7	66	2	Q9N6F8	Q9n6f8 conus catus
31	104	70.7	66	2	Q9NCV9	Q9ncv9 conus catus

32	104	70.7	66	2	Q9NCW0	Q9ncw0 conus catus
33	103	70.1	66	2	Q9NCV6	Q9ncv6 conus catus
34	97.5	66.3	72	1	CKXB CONST	P28881 conus stria
35	95	64.6	66	2	Q9NCV8	Q9ncv8 conus catus
36	70.5	48.0	29	1	CKX07 CONGE	P05483 conus geogr
37	65	44.2	67	2	Q6XE29	P05483 conus geogr
38	58.5	39.8	96	2	Q64JE6	Q64je6 conus ermin
39	58.5	39.8	96	2	Q64KQ7	Q64kq7 oncorhynch
40	58	39.5	318	2	Q9SB60	Q9sb60 arabidopsis
41	57	38.8	81	2	Q9BP83	Q9bp83 conus arena
42	56.5	38.4	73	1	CKX06 CONGE	P01522 conus geogr
43	56.5	38.4	132	2	Q6CWQ2	Q6cwq2 kluveromyc
44	56.5	38.4	609	2	Q8JGN1	Q8jgn1 naja mossam
45	56	38.1	57	2	Q9N9H2	Q9n9h2 venerupis (

ALIGNMENTS

RESULT 1  
ID CKXA CONMA STANDARD; PRT; 71 AA.  
AC P05484;  
DT 01-NOV-1988 (Rel. 09, Created)  
DT 28-FEB-2003 (Rel. 41, Last sequence update)  
DT 25-OCT-2004 (Rel. 45, Last annotation update)  
DE Omega-conotoxin MVIIA precursor (SNX-111) (Ziconotide).  
OS Conus magus (Magus cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=6492;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE=Venom duct;  
RX MEDLINE=20519630; PubMed=10938268; DOI=10.1074/jbc.M002252200;  
RA Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,  
RA Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,  
RA Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;  
RT "Novel omega-conotoxins from Conus catus discriminate among neuronal  
RT calcium channel subtypes.";  
RL J. Biol. Chem. 275:35335-35344 (2000).  
RN [2]  
RP SEQUENCE OF 46-70.  
RX MEDLINE=86070213; PubMed=4071055;  
RA Olivera B.M., Gray W.R., Zeikus R.D., McIntosh J.M., Varga J.,  
RA Rivier J.E., de Santos V., Cruz L.J.;  
RT "Peptide neurotoxins from fish-hunting cone snails.";  
RL Science 230:1338-1343 (1985).  
RN [3]  
RP SEQUENCE OF 46-70.  
RX MEDLINE=87299637; PubMed=2441741;  
RA Olivera B.M., Cruz L.J., de Santos V., Lecheminant G.W., Griffin D.,  
RA Zeikus R.D., McIntosh J.M., Galyean R., Varga J., Gray W.R.,  
RA Rivier J.E.;  
RT "Neuronal calcium channel antagonists. Discrimination between calcium  
RT channel subtypes using omega-conotoxin from Conus magus venom.";  
RL Biochemistry 26:2086-2090 (1987).  
RN [4]  
RP DISULFIDE BONDS.  
RX MEDLINE=96122182; PubMed=8537186;  
RA Chung D., Gaur S., Bell J.R., Ramachandran J., Nadasdi L.;  
RT "Determination of disulfide bridge pattern in omega-conopeptides.";  
RL Int. J. Pept. Protein Res. 46:320-325 (1995).  
RN [5]  
RP SYNTHESIS, AND MUTAGENESIS OF LYS-47 AND TYR-58.  
RX MEDLINE=95122938; PubMed=7826361;  
RA Kim J.I., Takahashi M., Ohtake A., Wakamiya A., Sato K.;  
RT "Tyr13 is essential for the activity of omega-conotoxin MVIIA and  
RT GVIA, specific N-type calcium channel blockers.";  
RL Biochem. Biophys. Res. Commun. 206:449-454 (1995).  
RN [6]  
RP STRUCTURE BY NMR.



DR GO: 0009405; P: pathogenesis; IEA.  
DR InterPro: IPR004214; Conotoxin; 1.  
DR Pfam: PF02950; Conotoxin; 1.  
FT NON TER 1  
SQ SEQUENCE 66 AA; 7054 MW; E9FE5E310968A1AC CRC64;  
Query Match 86.4%; Score 127; DB 2; Length 66;  
Best Local Similarity 80.0%; Pred. No. 7.7e-09;  
Matches 20; Conservative 1; Mismatches 4; Indels 0; Gaps 0;  
QY 1 CKGKGAXCSRLMYDCTGSCRSKGC 25  
||||| : ||||| : ||||| : ||||| : ||||| :  
Db 41 CKGKGASCRRTSYDCTGSCRSKGC 65

RESULT 4  
Q9NCW5 Q9NCW5 PRELIMINARY; PRT; 66 AA.  
ID Q9NCW5 Q9NCW5 PRELIMINARY; PRT; 66 AA.  
AC Q9NCW5 Q9NCW5 PRELIMINARY; PRT; 66 AA.  
DT 01-OCT-2000 (TrEMBLrel. 15, Created)  
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)  
DT 01-OCT-2000 (TrEMBLrel. 25, Last annotation update)  
DE Four-loop conotoxin (Fragment).  
OS Conus catus (Cat cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=101291;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC Duda T.F., Palumbi S.R.;  
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
DR EMBL: AF174217; AAF89881.1; -  
DR HSSP: P05484; 1PEO.  
DR GO: 0008200; P: ion channel inhibitor activity; IEA.  
DR GO: 0009405; P: pathogenesis; IEA.  
DR InterPro: IPR004214; Conotoxin; 1.  
DR Pfam: PF02950; Conotoxin; 1.  
FT NON TER 1  
SQ SEQUENCE 66 AA; 7083 MW; E445338A7939E4A8 CRC64;  
Query Match 86.4%; Score 127; DB 2; Length 66;  
Best Local Similarity 80.0%; Pred. No. 7.7e-09;  
Matches 20; Conservative 1; Mismatches 4; Indels 0; Gaps 0;  
QY 1 CKGKGAXCSRLMYDCTGSCRSKGC 25  
||||| : ||||| : ||||| : ||||| : ||||| :  
Db 41 CKGKGASCRRTSYDCTGSCRSKGC 65

RESULT 5  
Q9NCW6 Q9NCW6 PRELIMINARY; PRT; 66 AA.  
ID Q9NCW6 Q9NCW6 PRELIMINARY; PRT; 66 AA.  
AC Q9NCW6 Q9NCW6 PRELIMINARY; PRT; 66 AA.  
DT 01-OCT-2000 (TrEMBLrel. 15, Created)  
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)  
DT 01-OCT-2000 (TrEMBLrel. 25, Last annotation update)  
DE Four-loop conotoxin (Fragment).  
OS Conus catus (Cat cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=101291;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC Duda T.F., Palumbi S.R.;  
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
DR EMBL: AF174216; AAF89880.1; -  
DR HSSP: P05484; 1PEO.  
DR GO: 0008200; P: ion channel inhibitor activity; IEA.  
DR GO: 0009405; P: pathogenesis; IEA.  
DR InterPro: IPR004214; Conotoxin; 1.  
DR Pfam: PF02950; Conotoxin; 1.  
FT NON TER 1  
SQ SEQUENCE 66 AA; 7083 MW; E445338A7939E4A8 CRC64;  
Query Match 86.4%; Score 127; DB 2; Length 66;  
Best Local Similarity 80.0%; Pred. No. 7.7e-09;  
Matches 20; Conservative 1; Mismatches 4; Indels 0; Gaps 0;  
QY 1 CKGKGAXCSRLMYDCTGSCRSKGC 25  
||||| : ||||| : ||||| : ||||| : ||||| :  
Db 41 CKGKGASCRRTSYDCTGSCRSKGC 65

RESULT 6  
CXOB CONCT STANDARD; PRT; 25 AA.  
ID CXOB CONCT STANDARD; PRT; 25 AA.  
AC P58918;  
DT 28-FEB-2003 (Rel. 41, Created)  
DT 28-FEB-2003 (Rel. 41, Last sequence update)  
DT 05-JUL-2004 (Rel. 44, Last annotation update)  
DE Omega-conotoxin CVIB.  
OS Conus catus (Cat cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=101291;  
RN [1]  
RP SEQUENCE, AND SYNTHESIS.  
RC Tissue=Venom;  
RX MEDLINE=20519630; PubMed=10938268; DOI=10.1074/jbc.M002522200;  
RA Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,  
RA Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,  
RA Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;  
RT "Novel omega-conotoxins from Conus catus discriminate among neuronal calcium channel subtypes";  
RL J. Biol. Chem. 275:35335-35344 (2000).  
CC -1- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind and block voltage-sensitive calcium channels (VSCC) (By similarity). This toxin blocks N-, P-, and Q-type calcium channels.  
CC -1- SUBCELLULAR LOCATION: Secreted.  
CC -1- TISSUE SPECIFICITY: Expressed by the venom duct.  
CC -1- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type family.  
DR HSSP: P37300; 1CWN.  
KW Amidation; Calcium channel inhibitor; Direct protein sequencing;  
KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Toxin.  
FT DISULFID 1 16 By similarity.  
FT DISULFID 8 20 By similarity.  
FT DISULFID 15 25 By similarity.  
FT MOD RES 25 25 Cysteine amide.  
SQ SEQUENCE 25 AA; 2717 MW; D41A9E5F5AFA9552 CRC64;  
Query Match 84.4%; Score 124; DB 1; Length 25;  
Best Local Similarity 76.0%; Pred. No. 8e-09;  
Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;  
QY 1 CKGKGAXCSRLMYDCTGSCRSKGC 25  
||||| : ||||| : ||||| : ||||| : ||||| :  
Db 1 CKGKGASCRRTSYDCTGSCRSKGC 25

RESULT 7  
CXOC CONCT STANDARD; PRT; 26 AA.  
ID CXOC CONCT STANDARD; PRT; 26 AA.  
AC P58919;  
DT 28-FEB-2003 (Rel. 41, Created)  
DT 28-FEB-2003 (Rel. 41, Last sequence update)  
DT 05-JUL-2004 (Rel. 44, Last annotation update)  
DE Omega-conotoxin CVIC.  
OS Conus catus (Cat cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;

DR GO: 0009405; P: pathogenesis; IEA.  
 DR InterPro: IPR004214; Conotoxin; 1.  
 DR Pfam: PF02950; Conotoxin; 1.  
 FT NON\_TER 1  
 SQ SEQUENCE 66 AA; 7054 MW; E9FE5E310968A1AC CRC64;  
 Query Match 86.4%; Score 127; DB 2; Length 66;  
 Best Local Similarity 80.0%; Pred. No. 7.7e-09;  
 Matches 20; Conservative 1; Mismatches 4; Indels 0; Gaps 0;  
 QY 1 CKGKGAXCSRLMYDCTGSCRSKGC 25  
 ||||| : ||||| : ||||| : ||||| : ||||| :  
 DB 41 CKGKGASCRRTSYDCTGSCRSKGC 65

RESULT 4  
 Q9NCW5 Q9NCW5 PRELIMINARY; PRT; 66 AA.  
 ID Q9NCW5 Q9NCW5 PRELIMINARY; PRT; 66 AA.  
 AC P58918;  
 DT 01-OCT-2000 (TrEMBLrel. 15, Created)  
 DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)  
 DT 01-OCT-2000 (TrEMBLrel. 25, Last annotation update)  
 DE Four-loop conotoxin (Fragment).  
 OS Conus catus (Cat cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC Duda T.F., Palumbi S.R.;  
 RL Submitted (Aug-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL: AF174217; AAF89881.1; -  
 DR HSSP: P05484; 1PEO.  
 DR GO: 0005576; C: extracellular; IEA.  
 DR GO: 0008200; F: ion channel inhibitor activity; IEA.  
 DR GO: 0009405; P: pathogenesis; IEA.  
 DR InterPro: IPR004214; Conotoxin; 1.  
 DR Pfam: PF02950; Conotoxin; 1.  
 FT NON\_TER 1  
 SQ SEQUENCE 66 AA; 7083 MW; E445338A7939E4A8 CRC64;  
 Query Match 86.4%; Score 127; DB 2; Length 66;  
 Best Local Similarity 80.0%; Pred. No. 7.7e-09;  
 Matches 20; Conservative 1; Mismatches 4; Indels 0; Gaps 0;  
 QY 1 CKGKGAXCSRLMYDCTGSCRSKGC 25  
 ||||| : ||||| : ||||| : ||||| : ||||| :  
 DB 41 CKGKGASCRRTSYDCTGSCRSKGC 65

RESULT 5  
 Q9NCW6 Q9NCW6 PRELIMINARY; PRT; 66 AA.  
 ID Q9NCW6 Q9NCW6 PRELIMINARY; PRT; 66 AA.  
 AC P58918;  
 DT 01-OCT-2000 (TrEMBLrel. 15, Created)  
 DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)  
 DT 01-OCT-2000 (TrEMBLrel. 25, Last annotation update)  
 DE Four-loop conotoxin (Fragment).  
 OS Conus catus (Cat cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC Duda T.F., Palumbi S.R.;  
 RL Submitted (Aug-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL: AF174216; AAF89880.1; -  
 DR HSSP: P05484; 1PEO.  
 DR GO: 0005576; C: extracellular; IEA.  
 DR GO: 0008200; F: ion channel inhibitor activity; IEA.  
 DR GO: 0009405; P: pathogenesis; IEA.  
 DR InterPro: IPR004214; Conotoxin; 1.  
 DR Pfam: PF02950; Conotoxin; 1.  
 FT NON\_TER 1  
 SQ SEQUENCE 66 AA; 7083 MW; E445338A7939E4A8 CRC64;  
 Query Match 86.4%; Score 127; DB 2; Length 66;  
 Best Local Similarity 80.0%; Pred. No. 7.7e-09;  
 Matches 20; Conservative 1; Mismatches 4; Indels 0; Gaps 0;  
 QY 1 CKGKGAXCSRLMYDCTGSCRSKGC 25  
 ||||| : ||||| : ||||| : ||||| : ||||| :  
 DB 41 CKGKGASCRRTSYDCTGSCRSKGC 65

RESULT 6  
 CXOB CXOB CONCT STANDARD; PRT; 25 AA.  
 ID CXOB CONCT STANDARD; PRT; 25 AA.  
 AC P58918;  
 DT 28-FEB-2003 (Rel. 41, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Omega-conotoxin CVIB.  
 OS Conus catus (Cat cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;  
 RN [1]  
 RP SEQUENCE AND SYNTHESIS.  
 RC Tissue=Venom;  
 RX MEDLINE=20519630; PubMed=10938268; DOI=10.1074/jbc.M002522200;  
 RA Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,  
 RA Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,  
 RA Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;  
 RT "Novel omega-conotoxins from Conus catus discriminate among neuronal calcium channel subtypes";  
 RL J. Biol. Chem. 275:35335-35344 (2000).  
 CC -1- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind and block voltage-sensitive calcium channels (VSCC) (By similarity). This toxin blocks N-, P-, and Q-type calcium channels.  
 CC -1- SUBCELLULAR LOCATION: Secreted.  
 CC -1- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -1- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type family.  
 CC HSSP: P37300; 1CWN.  
 DR Amidation; Calcium channel inhibitor; Direct protein sequencing;  
 KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Toxin.  
 FT DISULFID 1 16 By similarity.  
 FT DISULFID 8 20 By similarity.  
 FT DISULFID 15 25 By similarity.  
 FT MOD\_RES 25 25 Cysteine amide.  
 SQ SEQUENCE 25 AA; 2717 MW; D41A9E5F5AFA9552 CRC64;  
 Query Match 84.4%; Score 124; DB 1; Length 25;  
 Best Local Similarity 76.0%; Pred. No. 8e-09;  
 Matches 19; Conservative 2; Mismatches 4; Indels 0; Gaps 0;  
 QY 1 CKGKGAXCSRLMYDCTGSCRSKGC 25  
 ||||| : ||||| : ||||| : ||||| : ||||| :  
 DB 1 CKGKGASCRKTMYYDCRGSCRSKGC 25

RESULT 7  
 CXOC CXOC CONCT STANDARD; PRT; 26 AA.  
 ID CXOC CONCT STANDARD; PRT; 26 AA.  
 AC P58918;  
 DT 28-FEB-2003 (Rel. 41, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Omega-conotoxin CVIC.  
 OS Conus catus (Cat cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC Duda T.F., Palumbi S.R.;  
 RL Submitted (Aug-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL: AF174216; AAF89880.1; -  
 DR HSSP: P05484; 1PEO.  
 DR GO: 0005576; C: extracellular; IEA.  
 DR GO: 0008200; F: ion channel inhibitor activity; IEA.  
 DR GO: 0009405; P: pathogenesis; IEA.

OC	Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC	Neogastropoda; Conoidea; Conidae; Conus.
OX	NCBI_TaxID=101291;
RN	[1] SEQUENCE, AND SYNTHESIS.
RP	TISSUE=Venom;
RC	MEDLINE=20519630; PubMed=10939268; DOI=10.1074/jbc.M002525200;
RX	Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,
RA	Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,
RA	Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;
RT	"Novel omega-conotoxins from <i>Conus catus</i> discriminate among neuronal
RT	calcium channel subtypes.";
RL	J. Biol. Chem. 275:35335-35344 (2000).
CC	-1- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC	and block voltage-sensitive calcium channels (VSCC) (By
CC	similarity). This toxin blocks N-, P-, and Q-type calcium
CC	channels.
CC	-1- SUBCELLULAR LOCATION: Secreted.
CC	-1- TISSUE SPECIFICITY: Expressed by the venom duct.
CC	-1- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type
CC	family.
DR	HSP; P05484; 1DM4.
KW	Amidation; Calcium channel inhibitor; Direct protein sequencing;
KW	Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Toxin.
FT	DISULFID 1 16 By similarity.
FT	DISULFID 8 20 By similarity.
FT	DISULFID 15 26 By similarity.
FT	MOD_RES 26 26 Cysteine amide.
SQ	SEQUENCE 26 AA; 2790 MW; 56EPC382335C4A8B CRC64;
Query Match 83.3%; Score 122.5; DB 1; Length 26;	
Best Local Similarity 80.8%; Pred. No. 1.3e-08;	
Matches 21; Conservative 1; Mismatches 3; Indels 1; Gaps	
QY	1 CKKGKAGXCSRLMYDCTGSC-RSGKC 25 
Db	1 CKKGQSCSKLWYDCTGSCRRGKC 26 
RESULT 8	
IC	COB_CONMA STANDARD; PRT; 25 AA.
XD	-1- CXOB CONMA
AC	P05485;
DT	01-NOV-1988 (Rel. 09, Created)
DT	01-NOV-1988 (Rel. 09, Last sequence update)
DT	03-JUL-2004 (Rel. 44, Last annotation update)
DE	Omega-conotoxin MWIIB (SNX-159).
OS	<i>Conus magus</i> (Magus cone).
OS	Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC	Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC	Neogastropoda; Conoidea; Conidae; Conus.
OX	NCBI_TaxID=6492;
OX	[1] SEQUENCE.
RN	MEDLINE=87299637; PubMed=2441741;
RX	Olivera B.M., Cruz L.J., de Santos V., Lecheminant G.W., Griffin D.,
RA	Zeikus R.D., McIntosh J.M., Galyean R., Varga J., Gray W.R.,
RA	Rivier J.E.;
RT	"Neuronal calcium channel antagonists. Discrimination between calcium
RT	channel subtypes using omega-conotoxin from <i>Conus magus</i> venom.";
RL	Biochemistry 26:2086-2090 (1987).
CC	-1- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC	and block voltage-sensitive calcium channels (VSCC).
CC	-1- SUBCELLULAR LOCATION: Secreted.
CC	-1- TISSUE SPECIFICITY: Expressed by the venom duct.
CC	-1- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type
CC	family.
DR	PIR; JH0701; JH0701.
DR	HSP; P05484; 1DM4.
KW	Amidation; Calcium channel inhibitor; Direct protein sequencing;
KW	Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Toxin.
FT	DISULFID 1 16
FT	DISULFID 8 20

```
FT NON_TER 1 1
SQ SEQUENCE 66 AA; 6955 MW; E445338A6A7A1AC CRC64;

Query Match
Best Local Similarity 81.6%; Score 120; DB 2; Length 66;
Matches 19; Conservative 1; Mismatches 5; Indels 0; Gaps 0;

QY 1 CKGKGXGCSRLMYDCTGSCRSKGC 25
DB 41 CKGKGASCRRTSYGCTGSCRSKGC 65

RESULT 11
Q9NCV7 PRELIMINARY; PRT; 66 AA.
AC Q9NCV7;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE Four-loop conotoxin (fragment).
OS Conus catus (Cat cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=101291;
RN [1]
RP SEQUENCE FROM N.A.
RA Duda T.F., Palumbi S.R.;
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF174236; AAF89900.1; -.
DR HSSP; P05484; 1FYG.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0008200; P:ion channel inhibitor activity; IEA.
DR GO; GO:0009405; P:pathogenesis; IEA.
DR InterPro; IPR004214; Conotoxin.
DR Pfam; PF02950; Conotoxin; 1.
FT NON_TER 1
SQ SEQUENCE 66 AA; 7053 MW; 7453798A6968B31B CRC64;

Query Match
Best Local Similarity 79.6%; Score 117; DB 2; Length 66;
Matches 17; Conservative 4; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKGKGXGCSRLMYDCTGSCRSKGC 25
DB 41 CQGGASCRKTSYDCTGSCRSKGC 65

RESULT 12
Q9N6N6 PRELIMINARY; PRT; 66 AA.
AC Q9N6N6;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)
DE Four-loop conotoxin (fragment).
OS Conus striatus (Striated cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6493;
RN [1]
RP SEQUENCE FROM N.A.
RA Duda T.F., Palumbi S.R.;
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF174244; AAF89908.1; -.
DR EMBL; AF174240; AAF89904.1; -.
DR HSSP; Q9XZK2; 1FYG.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0008200; P:ion channel inhibitor activity; IEA.
DR GO; GO:0009405; P:pathogenesis; IEA.
DR InterPro; IPR004214; Conotoxin.
DR Pfam; PF02950; Conotoxin; 1.
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FT NON_TER 1 1
SQ SEQUENCE 66 AA; 6966 MW; 29A992710CA7DA05 CRC64;

Query Match
Best Local Similarity 78.9%; Score 116; DB 2; Length 66;
Matches 18; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

QY 1 CKGKGXGCSRLMYDCTGSCRSKGC 25
DB 41 CKAGKSCSRIAYNCTGSCRSKGC 65

RESULT 13
Q9NCU1 PRELIMINARY; PRT; 66 AA.
AC Q9NCU1;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE Four-loop conotoxin (fragment).
OS Conus striatus (Striated cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6493;
RN [1]
RP SEQUENCE FROM N.A.
RA Duda T.F., Palumbi S.R.;
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF174267; AAF89931.1; -.
DR HSSP; Q9XZK2; 1FYG.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0008200; P:ion channel inhibitor activity; IEA.
DR GO; GO:0009405; P:pathogenesis; IEA.
DR InterPro; IPR004214; Conotoxin.
DR Pfam; PF02950; Conotoxin; 1.
FT NON_TER 1
SQ SEQUENCE 66 AA; 6951 MW; 0D9868C0A7A1A39F CRC64;

Query Match
Best Local Similarity 72.0%; Score 116; DB 2; Length 66;
Matches 18; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

QY 1 CKGKGXGCSRLMYDCTGSCRSKGC 25
DB 41 CKAGKSCSRIAYNCTGSCRSKGC 65

RESULT 14
Q9NCV0 PRELIMINARY; PRT; 66 AA.
AC Q9NCV0;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE Four-loop conotoxin (fragment).
OS Conus striatus (Striated cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6493;
RN [1]
RP SEQUENCE FROM N.A.
RA Duda T.F., Palumbi S.R.;
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF174246; AAF89910.1; -.
DR HSSP; Q9XZK2; 1FYG.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0008200; P:ion channel inhibitor activity; IEA.
DR GO; GO:0009405; P:pathogenesis; IEA.
DR InterPro; IPR004214; Conotoxin.
DR Pfam; PF02950; Conotoxin; 1.
FT NON_TER 1
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SQ SEQUENCE 66 AA; 6981 MW; 20CDC33D7CA7DA05 CRC64;  
 Query Match 78.9%; Score 116; DB 2; Length 66;  
 Best Local Similarity 72.0%; Pred. No. 1.9e-07;  
 Matches 18; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

QY 1 CKGKGXCSRLMYDCTGSCRSKGC 25  
 |||: |||||  
 Db 41 CKAAGKSCSRIAYNCTGSCRSKGC 65

## RESULT 15

Q9NCV4  
 ID Q9NCV4 PRELIMINARY; PRT; 66 AA.  
 AC Q9NCV4;  
 DT 01-OCT-2000 (TReMBLrel. 15, Created)  
 DT 01-OCT-2000 (TReMBLrel. 15, Last sequence update)  
 DT 01-OCT-2003 (TReMBLrel. 25, Last annotation update)  
 DE Four-loop conotoxin (Fragment).  
 OS Conus striatus (Striated cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=6493;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Duda T.P., Palumbi S.R.;  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174241; AAF89905.1; -;  
 DR HSSP; Q9XZK2; 1FYG.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; P:ion channel inhibitor activity; IEA.  
 DR GO; GO:0009405; P:pathogenesis; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 FT NON\_TER 1  
 SQ SEQUENCE 66 AA; 6980 MW; 286F491D7CA7DA05 CRC64;

Query Match 78.9%; Score 116; DB 2; Length 66;  
 Best Local Similarity 72.0%; Pred. No. 1.9e-07;  
 Matches 18; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

QY 1 CKGKGXCSRLMYDCTGSCRSKGC 25  
 |||: |||||  
 Db 41 CKAAGKSCSRIAYNCTGSCRSKGC 65

Search completed: March 23, 2005, 00:16:37  
 Job time : 66.7492 secs

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:44:17 ; Search time 87.3267 Seconds  
(without alignments)  
119.580 Million cell updates/sec

Title: US-09-787-082A-12  
Perfect score: 150  
Sequence: 1 CWSXSSCSXTSYNCRSCNXXTKRCY 27

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : A\_Geneseq\_16Dec04:\*

1: Geneseqp1980s:\*

2: Geneseqp1990s:\*

3: Geneseqp2000s:\*

4: Geneseqp2001s:\*

5: Geneseqp2002s:\*

6: Geneseqp2003as:\*

7: Geneseqp2003bs:\*

8: Geneseqp2004s:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	144	96.0	27	2	AAR32779 GVIA omeg
2	144	96.0	27	2	AAR32779 GVIA omeg
3	144	96.0	27	3	AAY56475 Natural o
4	144	96.0	27	3	AAY56475 Natural o
5	141	94.0	27	3	AAY43716 Amino aci
6	141	94.0	27	2	AAR39610 GVIA/SNX1
7	141	94.0	27	2	AAR37754 GVIA/SNX-
8	141	94.0	27	2	AAR76091 Omega con
9	141	94.0	27	2	AAR76091 Omega con
10	141	94.0	27	2	AAR76091 Omega con
11	141	94.0	27	2	AAR76091 Omega con
12	141	94.0	27	2	AAR76091 Omega con
13	141	94.0	27	3	AAB14354 Omega-con
14	141	94.0	27	4	AAB19444 Primary s
15	141	94.0	27	5	AAOI5122 Cone snail
16	141	94.0	73	2	AAR38796 Conotoxin
17	141	94.0	73	5	ABB96642 Omega-con
18	136	90.7	27	5	ABB96642 Omega-con
19	136	90.7	73	5	ABB96640 Omega-con
20	135	90.0	27	2	AAR51035 N-type ca
21	121	80.7	26	5	ABB96747 Omega-con
22	121	80.7	27	5	ABB96745 Omega-con
23	121	80.7	28	5	ABB96746 Omega-con
24	120	80.0	27	2	AAR32783 TVIA omeg
25	120	80.0	27	2	AAR12973 Omega con

26	120	80.0	27	3	AAY56479	AAY56479 Natural o
27	117	78.0	27	2	AAR39614	AAR39614 TVIA/SNX1
28	117	78.0	27	2	AAR37759	AAR37759 TVIA/SNX-
29	117	78.0	27	2	AAR76095	AAR76095 Omega con
30	117	78.0	27	2	AAW19550	AAW19550 Natural o
31	117	78.0	27	2	AAW72611	AAW72611 Conus gen
32	117	78.0	27	2	AAW95570	AAW95570 Omega-con
33	117	78.0	27	2	AAW42340	AAW42340 Omega-con
34	117	78.0	27	3	AAB14358	AAB14358 Omega-con
35	117	78.0	27	4	AAB19448	AAB19448 Primary s
36	117	78.0	73	5	ABB96688	ABB96688 Omega-con
37	116	77.3	27	5	ABB96743	ABB96743 Omega-con
38	115.5	77.0	24	4	AB92218	AB92218 Toxin pep
39	114	76.0	27	2	AAR38517	AAR38517 Omega-con
40	112	74.7	30	5	ABB96856	ABB96856 Omega-con
41	112	74.7	75	5	ABB96653	ABB96653 Omega-con
42	111	74.0	27	2	AAR12543	AAR12543 Omega con
43	109	72.7	27	2	AAW12986	AAW12986 Omega con
44	109	72.7	27	3	AAY56497	AAY56497 Analogue
45	109	72.7	27	3	AAB14371	AAB14371 Omega-con

ALIGNMENTS

RESULT 1  
AAR32779  
ID AAR32779 standard; peptide; 27 AA.

XX AAR32779;

XX 28-JUN-1993 (first entry)

XX GVIA omega conotoxin peptide.

XX OCT; neuronal damage reduction; ischemia; secondary damage; stroke.

XX Synthetic.

XX US5189020-A.

XX 23-FEB-1993.

XX 02-AUG-1990; 90US-00561766.

XX 22-NOV-1989; 89US-00440094.

XX (NEUR-) NEUREX CORP.

XX Miljanich GP, Bitner RS, Bowersox SS, Fox JA, Valentino KL;

XX Yamashiro DH, Taubokawa M;

XX WPI; 1993-085564/10.

XX Reducing neuronal damage due to ischaemia - involves using omega

XX conotoxin peptide or fragment.

XX Disclosure; Fig 1; 32pp; English.

XX The sequence is that of the GVIA omega conotoxin (OCT) peptide which can bind to an OCT binding protein, inhibit voltage-gated calcium currents selectively in neuronal tissue and inhibit neuronal transmitter release selectively in neuronal tissue. These properties all occur within the range of those of MWIB, GVIA, RVIA, or pref. MWIA and GVIA OCTs. The peptide can be used in reducing or preventing both anatomical and functional secondary damage related to ischemia, generally as associated with stroke

XX Sequence 27 AA;

XX Query Match

XX Best Local Similarity 96.0%; Score 144; DB 2; Length 27;

XX Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKSXGSCSXTSYNCCRSNCXYTKRCY 27  
 DB 1 CKSXGSCSXTSYNCCRSNCXYTKRCY 27

RESULT 2  
 AA12969  
 ID AA12969 standard; peptide; 27 AA.  
 XX  
 AC AA12969;  
 XX  
 DT 25-MAR-2003 (revised)  
 DT 22-APR-1997 (first entry)  
 XX  
 DE Omega conopeptide SNX-124.  
 KW Omega conopeptide; analgesic; treatment; neuropathic pain; inhibition;  
 KW neuronal damage; schizophrenia; tardive dyskinesia; analgesia;  
 KW acute dystonic reactions; inflammation; epilepsy.  
 XX Synthetic.  
 OS  
 XX  
 FH Key Location/Qualifiers  
 FT Modified-site 4  
 FT Modified-site 10 /label= Hyp  
 FT Modified-site 10 /label= Hyp  
 FT Modified-site 21 /label= Hyp  
 FT Modified-site 21 /label= Hyp  
 XX  
 XX US5587454-A.  
 PN  
 XX  
 XX 24-DEC-1996.  
 PD  
 XX  
 PF 15-APR-1993; 93US-00049794.  
 XX  
 PR 30-DEC-1991; 91US-00814759.  
 PR 30-DEC-1992; 92WO-US011349.  
 XX  
 PA (NEUR-) NEUREX CORP.  
 XX  
 XX Gohil KC, Miljanich GP, Valentino KL, Justice A, Singh T;  
 PI WPI; 1997-064830/06.  
 XX  
 DR Omega cono:peptide(s) - useful as analgesics, esp. for treating  
 XX neuropathic pain.  
 XX  
 PS Disclosure; Col 41-42; 58pp; English.  
 CC The present peptide is an omega conopeptide, useful as an analgesic,  
 CC especially for treating neuropathic pain. The peptide, which can be  
 CC prepared by solid phase synthesis, can also be used to inhibit neuronal  
 CC damage and treat schizophrenia, tardive dyskinesia, acute dystonic  
 CC reactions, inflammation and epilepsy. (Updated on 25-MAR-2003 to correct  
 CC PF field.)  
 CC  
 XX  
 SQ Sequence 27 AA;  
 Query Match 96.0%; Score 144; DB 2; Length 27;  
 Best Local Similarity 100.0%; Pred. No. 5e-10; Mismatches 0; Indels 0; Gaps 0;  
 Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKSXGSCSXTSYNCCRSNCXYTKRCY 27  
 DB 1 CKSXGSCSXTSYNCCRSNCXYTKRCY 27

RESULT 3  
 AA12969  
 ID AA12969 standard; peptide; 27 AA.  
 XX

QY 1 CKSXGSCSXTSYNCCRSNCXYTKRCY 27  
 DB 1 CKSXGSCSXTSYNCCRSNCXYTKRCY 27

RESULT 4  
 AA12969  
 ID AA12969 standard; peptide; 27 AA.  
 XX

AC  
 XX  
 DT 16-FEB-2000 (first entry)  
 XX  
 DE Natural omega conopeptide GVIA/SNX-124.  
 XX  
 KW Omega conopeptide; analgesic; nociceptive; neuropathic; pain; conotoxin;  
 KW marine snail; peptide toxin; inflammation; binding;  
 KW voltage-gated calcium channel; inhibition; norepinephrine; noradrenaline;  
 KW anti-inflammatory.  
 XX  
 OS Conus sp.  
 XX  
 FH Key Location/Qualifiers  
 FT Misc-difference 4 /note= "unspecified"  
 FT Misc-difference 10 /note= "unspecified"  
 FT Misc-difference 21 /note= "unspecified"  
 FT Misc-difference 21 /note= "unspecified"  
 XX  
 PN US5994305-A.  
 XX  
 XX 30-NOV-1999.  
 PD  
 XX  
 PF 21-AUG-1998; 98US-00138439.  
 XX  
 PR 30-DEC-1991; 91US-00814759.  
 PR 15-APR-1993; 93US-00049794.  
 PR 03-JUL-1996; 96US-00675354.  
 PR 01-NOV-1996; 96US-00742774.  
 XX  
 XX (ELAN-) ELAN PHARM INC.  
 PA  
 XX  
 XX Justice A, Singh T, Valentino KL, Miljanich GP, Gohil KC;  
 PI WPI; 2000-038270/03.  
 XX  
 DR Measuring the activity of test compounds in blocking voltage-gated  
 XX calcium channels, binding to the omega conopeptide binding site and  
 XX inhibiting norepinephrine (noradrenaline) release for treating  
 XX inflammation.  
 XX  
 PS Disclosure; Fig 1; 47pp; English.  
 XX  
 CC A method has been developed of selecting a test compound for treating  
 CC inflammation. The method comprises measuring the activity of the test  
 CC compound in blocking voltage-gated calcium channels, binding to the omega  
 CC conopeptide binding site and inhibiting norepinephrine (noradrenaline)  
 CC release from nervous tissue. The method is useful for selecting compounds  
 CC for treating inflammation. The selected compounds are capable of  
 CC producing analgesia in a mammalian subject with chronic or intractable  
 CC pain. Analgesia caused by selected compounds may reduce the reliance on  
 CC opioid analgesic agents of the prior art which cause dependency and  
 CC tolerance, requiring potentially dangerous increases in opioid doses to  
 CC achieve the analgesic effect. The present sequence represents an omega  
 CC conopeptide given in the present invention  
 XX  
 SQ Sequence 27 AA;  
 Query Match 96.0%; Score 144; DB 3; Length 27;  
 Best Local Similarity 100.0%; Pred. No. 5e-10; Mismatches 0; Indels 0; Gaps 0;  
 Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKSXGSCSXTSYNCCRSNCXYTKRCY 27  
 DB 1 CKSXGSCSXTSYNCCRSNCXYTKRCY 27

RESULT 4  
 AA12969  
 ID AA12969 standard; peptide; 27 AA.  
 XX



AC AAY43716;  
XX 11-FEB-2000 (first entry)  
XX  
DE Amino acid sequence of an omega-conotoxin GVIA.  
XX  
KW Omega-conotoxin; venom; predatory marine snail; N-type calcium channel;  
KW neuronal damage reduction; ischemia; analgesia; opiate analgesia;  
KW schizophrenia; stimulant induced psychosis; hypertension; inflammation;  
KW bronchotension; neuropathic pain; voltage sensitive calcium channel.  
XX  
OS Conus geographus.  
XX  
XX  
FH Key Location/Qualifiers  
FT Modified-site 4  
FT /label= Hyp  
FT /note= "4-hydroxy proline"  
FT Modified-site 10  
FT /label= Hyp  
FT /note= "4-hydroxy proline"  
FT Modified-site 21  
FT /label= Hyp  
FT /note= "4-hydroxy proline"  
XX  
PN WO9954350-A1.  
XX  
PD 28-OCT-1999.  
XX  
PF 16-APR-1999; 99WO-AU000288.  
XX  
PR 16-APR-1998; 98AU-00002989.  
PR 01-FEB-1999; 99AU-00008419.  
XX  
PA (UYQU ) UNIV QUEENSLAND.  
XX  
PI Drinkwater RD, Lewis RJ, Alewood PF, Nielsen KJ;  
XX  
XX WPI; 2000-013226/01.  
DR  
XX Novel peptides used for the treatment of disorders and diseases where  
PT blockage of the N-type calcium channels is required.  
XX  
PS Disclosure; Page 13; 81pp; English.  
XX  
XX The present sequence represents an omega-conotoxin. Omega-conotoxins are  
CC isolated from venoms of predatory marine snails, and have a selectivity  
CC for N-type calcium channels over P/Q type channels, and so block N-type  
CC calcium channels. The omega-conotoxins of the invention can be used in  
CC any disease or disorder where blockage of N-type calcium channels is  
CC required, e.g. in the reduction of neuronal damage following ischemia,  
CC production of analgesia, or enhancement of opiate analgesia, in the  
CC treatment of schizophrenia, stimulant induced psychoses, hypertension,  
CC inflammation, and diseases which cause bronchotension, and also in the  
CC inhibition of progression of neuropathic pain. They can also be used in a  
CC screen to identify compounds with activity at N-type voltage sensitive  
CC calcium channels  
XX  
SQ Sequence 27 AA;  
Query Match 96.0%; Score 144; DB 3; Length 27;  
Best Local Similarity 100.0%; Pred. No. 5e-10;  
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CKSXGSSCSXTSYNCCRSNCNXYTKRCY 27  
DB 1 CKSXGSSCSXTSYNCCRSNCNXYTKRCY 27  
RESULT 5  
AAR39610  
ID AAR39610 standard; peptide; 27 AA.  
XX  
AC AAR39610;

XX 25-MAR-2003 (revised)  
DT 20-DEC-1993 (first entry)  
XX  
DE GVIA/SNK124.  
XX  
KW Omega conopeptide; OCT; analgesia; inhibition; voltage-gated;  
KW calcium channel; neurons; contraction; guinea pig; ileum; MVIIA;  
KW binding site; toxin; marine; snail; Conus; opiod; chronic pain;  
KW narcotics.  
XX  
OS Synthetic.  
XX  
FH Key Location/Qualifiers  
FT Disulfide-bond 1..16  
FT Modified-site 4  
FT /note= "4Hyp"  
FT Disulfide-bond 8..19  
FT Modified-site 10  
FT /note= "4Hyp"  
FT Disulfide-bond 15..26  
FT Modified-site 21  
FT /note= "4Hyp"  
XX  
PN WO9313128-A1.  
XX  
PD 08-JUL-1993.  
XX  
PF 30-DEC-1992; 92WO-US011349.  
XX  
PR 30-DEC-1991; 91US-00814759.  
XX  
PA (NEUR-) NEUREX CORP.  
XX  
PI Justice A, Singh T, Gohil K, Valentino KL, Miljanich GP;  
XX  
XX WPI; 1993-227270/28.  
DR  
XX Use of omega-cono-peptide(s) which selectively inhibit voltage-gated  
PT calcium channels - to induce analgesia, enhance opiate analgesics, treat  
PT pain etc.  
XX  
PS Claim 1; Fig 1; 90pp; English.  
XX  
XX The sequences given in AAR39608-30 are omega conopeptides (OCTs) and  
CC derivatives of these, which may be used to produce analgesia in a mammal.  
CC These OCTs inhibit voltage-gated calcium channels selectively in neuronal  
CC tissue. This is shown by the peptides ability to stimulate contraction in  
CC guinea pig ileum and to bind to OCT MVIIA binding sites present in  
CC neuronal tissue. OCTs are components of peptide toxins derived from  
CC marine snails of the genus Conus, and act as calcium channel blockers.  
CC These OCTs may be used to replace opiods in the treatment of chronic pain  
CC or to reduce the opiod dosage required. This helps to reduce dependence  
CC on and tolerance to opiod narcotics. (Updated on 25-MAR-2003 to correct  
CC PN field.)  
XX  
SQ Sequence 27 AA;  
Query Match 94.0%; Score 141; DB 2; Length 27;  
Best Local Similarity 88.9%; Pred. No. 1.1e-09;  
Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;  
QY 1 CKSXGSSCSXTSYNCCRSNCNXYTKRCY 27  
DB 1 CKSXGSSCSXTSYNCCRSNCNXYTKRCY 27  
RESULT 6  
AAR37754  
ID AAR37754 standard; peptide; 27 AA.  
XX  
AC AAR37754;  
XX

DT 25-MAR-2003 (revised)  
 XX 08-SEP-1993 (first entry)  
 DE GVIA/SNX-124.  
 KW Ischaemia; neuronal; omega-conotoxin; OCT; MVIIA; MVIIC; MVIID; MVIIB;  
 KW GVIA; GVIA; SVIA; TVIA; SVIB; SNX-207; stroke; delayed treatment;  
 KW antihistamine; blood pressure; N-type voltage-gated Ca currents;  
 KW N-channel mediated neurotransmitter release.  
 XX Synthetic.  
 OS  
 FH Key Location/Qualifiers  
 FT Disulfide-bond 1. .16  
 FT Modified-site 4 /note= "hydroxyproline"  
 FT Disulfide-bond 8. .19  
 FT Modified-site 10 /note= "hydroxyproline"  
 FT Disulfide-bond 15. .26  
 FT Modified-site 21 /note= "hydroxyproline"  
 FT W09310145-A1.  
 XX 27-MAY-1993.  
 XX 12-NOV-1992; 92WO-US009766.  
 XX 12-NOV-1991; 91US-00789913.  
 PR 17-JUL-1992; 92US-00916478.  
 XX (NEUR-) NEUREX CORP.  
 XX Miljanich GP, Bowersox SS, Fox JA, Valentino KL, Bitner RS;  
 PI Yamashiro DH;  
 XX WPI; 1993-182487/22.  
 DR Redn. of neuronal damage caused by ischaemia - by admin. of cpds. that  
 FT bind specifically to omega-conotoxin MVIIA binding sites.  
 XX Disclosure; Fig 1; 103pp; English.  
 PS Ischaemia-related neuronal damage in mammals is reduced by admin., 4-24  
 CC hr after onset of ischaemia, of a cpd. (I) which binds selectively to an  
 CC omega-conotoxin (OCT) MVIIA site in neuronal tissue. (I) has selectivity  
 CC at least 100 expressed as ratio of binding affinity for the MVIIA site to  
 CC that for the MVIIC site. (I) is one of the OCTs MVIIA, MVIIB, GVIA, GVIIA  
 CC or RVIA or it is the cpd. SNX-207. (I) is esp. used to reduce neuronal  
 CC damage caused by stroke. By delaying admin. for some time (compare  
 CC US051403 where cpds. are given within 1 hr of the onset of ischaemia) a  
 CC greater redn. in neuronal damage is achieved. (I) is admin. e.g. by  
 CC intracerebroventricular (ICV) injection at 0.1-20 microg/kg, but can also  
 CC be given i.v. (opt. after treatment with antihistamines to minimise redn.  
 CC in blood pressure caused by (I)). (I) is also at least as effective as  
 CC the specified conotoxins for (I) selective inhibition of N-type voltage-  
 CC gated Ca currents in neuronal tissue and (2) selective inhibition of N-  
 CC channel mediated neurotransmitter release in neuronal tissue. Primary  
 CC sequences of omega-conopeptides are given in AAR37752-62. Several analog  
 CC omega-conopeptides are given in AAR37763-76. (Updated on 25-MAR-2003 to  
 CC correct PN field.)  
 XX Sequence 27 AA;  
 SQ  
 Query Match 94.0%; Score 141; DB 2; Length 27;  
 Best Local Similarity 88.9%; Pred. No. 1.1e-09;  
 Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;  
 QY 1 CKSXSXGSCXKTSYNCRCSCNXYTKRCY 27  
 DB 1 CKSPGSCSFTSYNCRCSCNXYTKRCY 27

RESULT 7  
 AAR76091  
 ID AAR76091 standard; peptide; 27 AA.  
 XX  
 AC AAR76091;  
 XX 27-AUG-2003 (revised)  
 DT 25-MAR-2003 (revised)  
 DT 02-FEB-1996 (first entry)  
 XX Omega conotoxin GVIA peptide.  
 DE Omega conotoxin; marine snail; Conus; voltage-gated Ca channel blocker;  
 KW synaptosome; membrane; fish electric organ; mammalian brain; ischaemia;  
 KW binding protein; binding affinity; stroke.  
 XX Conus.  
 XX Key Location/Qualifiers  
 FH Disulfide-bond 1. .16  
 FT Modified-site 4 /label= 4-Hyp  
 FT Disulfide-bond 8. .19  
 FT Modified-site 10 /label= 4-Hyp  
 FT Disulfide-bond 15. .26  
 FT Modified-site 21 /label= 4-Hyp  
 FT Modified-site 27 /note= "amidated C-terminus"  
 FT US5424218-A.  
 PN 13-JUN-1995.  
 XX 04-NOV-1993; 93US-00147714.  
 XX 22-NOV-1989; 89US-00440094.  
 PR 02-AUG-1990; 90US-00561766.  
 PR 23-MAR-1992; 92US-00855269.  
 XX (NEUR-) NEUREX CORP.  
 XX Valentino KL, Bowersox SS, Bitner RS, Miljanich GP, Yamashiro DH;  
 PI Fox JA;  
 XX WPI; 1995-223694/29.  
 XX Identifying cpds. able to reduce neuronal damage caused by ischaemia - by  
 PT measuring their affinity to omega conotoxin MVIIA binding site and  
 PT ability e.g. to inhibit voltage gated calcium channels.  
 XX Disclosure; Fig 1; 31pp; English.  
 PS The peptides AAR76089-95 are naturally occurring omega conotoxin (OCT)  
 CC peptides derived from marine snails of the Conus genus. The peptide  
 CC sequences were used to chemically synthesise the OCT peptide fragments  
 CC AAR76096-R76109. The OCT peptides act as voltage-gated Ca channel  
 CC blockers by binding to a 210 kD protein from synaptosomal membrane  
 CC preparations from fish electric organ or mammalian brains. The peptides  
 CC and their synthesised fragments can be used to screen for compounds that  
 CC bind to the OCT binding protein, by displacing a high affinity labelled  
 CC OCT, such as MVIIA, from a synaptosomal membrane preparation. The  
 CC compounds should have binding affinities and activities at least equal to  
 CC those of the natural peptides (Ki 0.44-324 nM). The screened compounds  
 CC are potentially useful in treating ischaemic conditions, esp. stroke, and  
 CC can reduce sec. anatomical and functional damage associated with those  
 CC conditions. (Updated on 25-MAR-2003 to correct PF field.) (Updated on 27-  
 CC AUG-2003 to correct OS field.)  
 XX Sequence 27 AA;

Query Match 94.0%; Score 141; DB 2; Length 27;  
 Best Local Similarity 88.9%; Pred. No. 1.1e-09;  
 Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCRSNXXYTKRCY 27  
 |||||  
 DB 1 CKSPGSSCSPTSYNCCRSNPFYTKRCY 27  
 |||||

RESULT 8  
 AAW19546  
 ID AAW19546 standard; peptide; 27 AA.  
 XX  
 AC AAW19546;  
 XX  
 DT 27-AUG-2003 (revised)  
 DT 10-OCT-1997 (first entry)  
 XX  
 DE Natural omega-conopeptide GVIA/SNX-124 used for pain relief.  
 XX  
 KW Conopeptide; cone snail; pain; analgesic; neuropathy; epidural;  
 KW N-type voltage-sensitive calcium channel; block; Conus.  
 XX  
 OS Conus.  
 XX  
 FH Key Location/Qualifiers  
 FT Misc-difference 4 /label= 4Hyp  
 FT Misc-difference 10 /label= 4Hyp  
 FT Misc-difference 21 /label= 4Hyp  
 FT  
 XX WO9701351-A1.  
 PN  
 XX 16-JAN-1997.  
 PD  
 XX 26-JUN-1996; 96WO-US011041.  
 XX  
 XX 27-JUN-1995; 95US-00496847.  
 PR 08-MAR-1996; 96US-00613400.  
 XX  
 PA (NEUR-) NEUREX CORP.  
 XX  
 PI Amstutz GA, Bowersox SS, Gohil K, Adriaenssens PI, Kristipati R;  
 PI Gadbois T, Pettus MR, Luther RR;  
 XX  
 DR WPI; 1997-100012/09.  
 XX  
 PT Stable omega conopeptide compositions - for producing analgesia and for  
 PT inhibiting progression of neuropathic pain disorders.  
 XX  
 PS Disclosure; Fig 1; 47pp; English.  
 XX

AAW19544-W19553 are naturally occurring omega conopeptides (OCs) isolated from Conus sp. (cone snails). The peptides and their analogues are used as analgesics acting by blocking N-type voltage-sensitive calcium channels. The OCs can be used to treat neuropathic pain as a result of e.g. insult to the spinal cord or peripheral nerves, cancer, bone degenerative diseases, AIDS, reflex sympathetic dystrophy, herpes zoster neuropathy, diabetic neuropathy, hyperesthesia, allodynia or hyperalgesia. The OCs are preferably administered in a medicament via an epidural route in a continuous infusion or sustained release formulation. The OCs can provide pain relief when administered epidurally in the absence of a permeation enhancer, at doses that are comparable to effective analgesic doses using intrathecal administration. OC formulations comprising an OC and a carboxylic acid buffer anti-oxidant. They also confer stability to solutions containing them for prolonged treatment methods and long-term storage. (Updated on 27-AUG-2003 to correct OS field.)

Sequence 27 AA;

Query Match 94.0%; Score 141; DB 2; Length 27;  
 Best Local Similarity 88.9%; Pred. No. 1.1e-09;  
 Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCRSNXXYTKRCY 27  
 |||||  
 DB 1 CKSPGSSCSPTSYNCCRSNPFYTKRCY 27  
 |||||

RESULT 9  
 AAW72607  
 ID AAW72607 standard; peptide; 27 AA.  
 XX  
 AC AAW72607;  
 XX  
 DT 27-AUG-2003 (revised)  
 DT 06-JAN-1999 (first entry)  
 XX  
 DE Conus genus natural omega-conopeptide GVIA/SNX-124.  
 XX  
 KW Conus genus; marine snail; cone snail; omega-conopeptide; analgesia;  
 KW nociceptive pain; neuropathic pain; neuronal tissue; conotoxin;  
 KW inflammation; schizophrenia; tardive dyskinesia; acute dystonic reaction;  
 KW rheumatoid arthritis; epilepsy.  
 XX  
 OS Conus.  
 XX  
 FH Key Location/Qualifiers  
 FT Modified-site 4 /label= HYP  
 FT /note= "hydroxyproline"  
 FT Modified-site 10 /label= HYP  
 FT /note= "hydroxyproline"  
 FT Modified-site 21 /label= HYP  
 FT /note= "hydroxyproline"  
 FT  
 XX US5824645-A.  
 PN  
 XX 20-OCT-1998.  
 PD  
 XX 01-NOV-1996; 96US-00742774.  
 PP  
 XX 30-DEC-1991; 91US-00814759.  
 PR 15-APR-1993; 93US-00049794.  
 PR 03-JUL-1996; 96US-00675354.  
 XX  
 PA (NEUR-) NEUREX CORP.  
 XX  
 PI Miljanich GP, Valentino KL, Gohil KC, Justice A, Singh T;  
 PI  
 XX WPI; 1998-582596/49.  
 DR  
 XX Treatment of inflammation, comprises administration of omega-conopeptide  
 PT - effective to block voltage-gated calcium channels, bind with high  
 PT affinity to omega-conopeptide binding site, and inhibit neuro-transmitter  
 PT release.  
 XX  
 PS Disclosure; Fig 1; 58pp; English.  
 XX

A method has been developed for the treatment of inflammation in a subject. The method comprises administration of an omega-conopeptide effective to: (i) block voltage-gated calcium channels; (ii) bind with high affinity to an omega-conopeptide binding site; and (iii) inhibit neurotransmitter release from nervous tissue. The method is used to treat inflammation and associated pain. The treatment can also be used to produce analgesia (especially in subjects experiencing neuropathic pain) and to treat schizophrenia, tardive dyskinesia and acute dystonic reactions, rheumatoid arthritis, and epilepsy. The present sequence represents a natural omega-conopeptide. Omega-conopeptides are components of peptide toxins produced by marine snails of the genus Conus, and which act as calcium channel blockers. (Updated on 27-AUG-2003 to correct OS

CC field.)  
 XX  
 SQ Sequence 27 AA;  
 Query Match 94.0%; Score 141; DB 2; Length 27;  
 Best Local Similarity 88.9%; Pred. No. 1.1e-09;  
 Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;  
 QY 1 CKSXGSSCSXTSYNCCRSNCNXYTKRCY 27  
 ||| ||||| ||||| ||||| ||||| |||||  
 DB 1 CKSPGSSCSPTSYNCCRSNCNPTTKRCY 27  
 ||| ||||| ||||| ||||| ||||| |||||  
 RESULT 10  
 AAW95566  
 ID AAW95566 standard; protein; 27 AA.  
 XX  
 AC AAW95566;  
 XX  
 DT 29-MAR-1999 (first entry)  
 XX  
 XX Omega-conopeptide GVIA/SNX-124.  
 XX  
 KW Omega-conopeptide; peptide toxin; snail; calcium channel blocker;  
 KW analgesia; guinea pig ileum; omega-conotoxin; pain; neuropathic.  
 XX  
 OS Synthetic.  
 OS Conus sp.  
 XX  
 FH Key Location/Qualifiers  
 FT Modified-site 4 /label= 4HYP  
 FT /note= "4-Hydroxyproline"  
 FT Modified-site 10 /label= 4HYP  
 FT /note= "4-Hydroxyproline"  
 FT Modified-site 21 /label= 4HYP  
 FT /note= "4-Hydroxyproline"  
 FT Modified-site 27 /note= "C-terminal amide"  
 FT  
 XX US5859186-A.  
 XX  
 XX 12-JAN-1999.  
 XX  
 PF 03-JUL-1996; 96US-00675354.  
 XX  
 XX 30-DEC-1991; 91US-00814759.  
 XX 15-APR-1993; 93US-00049794.  
 XX  
 PA (NEUR-) NEUREX CORP.  
 XX  
 PI Miljanich GP, Gohil KC, Valentino KL, Justice A, Singh T;  
 XX WPI; 1999-120002/10.  
 XX  
 XX Production of analgesia in mammal - by administration of omega cono-  
 XX peptide(s).  
 XX  
 XX Disclosure; Fig 1A; 59pp; English.  
 XX  
 XX Sequences AAW95564-573 represent primary sequences of natural omega-  
 XX conopeptides. Omega-conopeptides are components of peptide toxins  
 XX produced by marine snails of the genus Conus, and which act as calcium  
 XX channel blockers. The invention relates to a method of producing  
 XX analgesia in a mammal that comprises administering an omega conopeptide  
 XX having activities in (a) inhibiting electrically stimulated contraction  
 XX of guinea pig ileum and (b) selectively binding to omega conopeptide  
 XX binding sites in neuronal tissue, where these activities are within  
 XX the ranges of those of omega-conotoxins MVIIA and TVIA. The method is  
 XX used for treating chronic pain, especially neuropathic pain

XX Sequence 27 AA; Query Match 94.0%; Score 141; DB 2; Length 27;  
 SQ Best Local Similarity 88.9%; Pred. No. 1.1e-09; Indels 0; Gaps 0;  
 Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCRSNXYTKRCY 27  
 |||||  
 DB 1 CKSPGSSCSPTSYNCCRSNXYTKRCY 27  
 |||||

RESULT 12  
 AAB14354  
 ID AAB14354 standard; peptide; 27 AA.  
 AC AAB14354;  
 DT 06-DEC-2000 (first entry)  
 XX Omega-conopeptide GVIA/SNX-124.  
 DE Marine snail; omega-conopeptide; calcium channel blocker; GVIA; SNX-124;  
 KW toxin; analgesic; antiinflammatory; anticonvulsant; neuroleptic;  
 KW norepinephrine release inhibitor; schizophrenia; tardive dyskinesia;  
 KW acute dystonic reaction; inflammation; epilepsy.  
 XX Conus sp.  
 OS  
 XX  
 FH Key Location/Qualifiers  
 FT Disulfide-bond 1..16  
 FT Modified-site 4  
 FT /label= 4Hyp  
 FT Disulfide-bond 8..19  
 FT Modified-site 10  
 FT /label= 4Hyp  
 FT Disulfide-bond 15..26  
 FT Modified-site 21  
 FT /label= 4Hyp  
 FT Modified-site 27  
 FT /note= "C-terminal amide"

US6087091-A.  
 XX  
 PD 11-JUL-2000.  
 XX  
 PF 23-APR-1999; 99US-00298017.  
 XX  
 PR 30-DEC-1991; 91US-00814759.  
 PR 15-APR-1993; 93US-00049794.  
 PR 03-JUL-1996; 96US-00675354.  
 PR 01-NOV-1996; 96US-00742774.  
 PR 21-AUG-1998; 98US-00138439.  
 XX  
 PA (ELAN-) ELAN PHARM INC.  
 XX  
 PI Singh T, Gohil KC, Valentino KL, Miljanich GP, Justice A;  
 XX WPI; 2000-490177/43.  
 XX  
 XX Selecting a compound for producing analgesia involves measuring activity  
 of test compound in blocking voltage-gated calcium channels, binding to  
 omega conopeptide binding site and inhibiting norepinephrine release.  
 XX  
 XX Disclosure; Fig 1; 58pp; English.  
 XX  
 CC The present sequence is an omega-conopeptide from marine snails of the  
 CC Genus Conus. Omega-conopeptides are components of peptide toxins produced  
 CC by the cone snails, and which act as calcium channel blockers. Natural  
 CC omega-conopeptides and their derivatives may be useful for producing  
 CC analgesia in nociceptive and neuropathic pain. The peptides bind to omega  
 CC -conopeptide binding sites, which are present mainly in neuronal tissue,  
 CC and inhibit norepinephrine release from nervous tissue. Conopeptides such

CC as MVIIA and TVIA are effective as therapeutic agents for treating  
 CC neurogenic conditions such as schizophrenia, tardive dyskinesia and acute  
 CC dystonic reactions, inflammation and epilepsy  
 XX Sequence 27 AA; Query Match 94.0%; Score 141; DB 3; Length 27;  
 SQ Best Local Similarity 88.9%; Pred. No. 1.1e-09; Indels 0; Gaps 0;  
 Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCRSNXYTKRCY 27  
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 DB 1 CKSPGSSCSPTSYNCCRSNXYTKRCY 27  
 |||||

RESULT 13  
 AAB98074  
 ID AAB98074 standard; peptide; 27 AA.  
 AC AAB98074;  
 DT 16-AUG-2001 (first entry)  
 XX Conotoxin GVIA peptide SEQ ID NO:3.  
 DE Mouse; N-calcium channel alpha 1B subunit; blood pressure control;  
 KW N-calcium channel knockout animal; blood glucose level control;  
 KW pain transfer; hypotensive; analgesic.  
 XX Conus geographus.  
 OS  
 XX  
 FH Key Location/Qualifiers  
 FT Modified-site 4  
 FT /note= "hydroxyproline"  
 FT Modified-site 10  
 FT /note= "hydroxyproline"  
 FT Modified-site 21  
 FT /note= "hydroxyproline"  
 XX  
 PN WO200130137-A1.  
 XX  
 PD 03-MAY-2001.  
 XX  
 PF 26-OCT-2000; 2000WO-JP007503.  
 XX  
 PR 26-OCT-1999; 99JP-00303809.  
 PR 16-FEB-2000; 2000JP-00037839.  
 PR 31-AUG-2000; 2000JP-00261979.  
 XX  
 PA (EISA ) EISAI CO LTD.  
 XX  
 PI Ino M, Miyamoto N, Takahashi E, Oki T, Yoshinaga T, Hatakeyama S;  
 PI Nildome T, Sawada K, Nishizawa Y, Tanaka I;  
 XX WPI; 2001-300406/31.  
 XX  
 XX N-type calcium channel deficient non-human animals useful for screening  
 PT for new drugs.  
 PT  
 XX Disclosure; Page 56; 64pp; Japanese.  
 XX  
 CC The present invention describes an N-type calcium channel deficient non-  
 CC human animal whose gene for the calcium channel has been disrupted. The  
 CC gene that is disrupted encodes the N-type calcium channel alpha 1B  
 CC subunit. Also described are: (1) a method for assaying usefulness of  
 CC substances using the animal; (2) a method for screening for substances  
 CC with potential pharmacological use; (3) useful substances found by the  
 CC method; and (4) a method for producing pharmaceuticals using this method  
 CC (specifically methods for producing a hypotensive drug, a pain killer and  
 CC a drug for lowering blood sugar and the substances themselves). The N-  
 CC type calcium channel deficient non-human animal can be used for screening  
 CC substances for pharmaceutical use. Active substances include a  
 CC hypotensive drug, a pain killer and a drug for lowering blood sugar. The

CC present sequence represents the Conus geographus conotoxin GVIA peptide  
 CC which is given in the exemplification of the present invention  
 XX Sequence 27 AA;

Query Match 94.0%; Score 141; DB 4; Length 27;  
 Best Local Similarity 88.9%; Pred. No. 1.1e-09;  
 Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;  
 QY 1 CKXGSSCSXTSYNCRSCNXYTKRCY 27  
 DB 1 CKSPGSSCSPTSYNCRSCNPNYTKRCY 27

RESULT 14  
 AAB19444  
 ID AAB19444 standard; peptide; 27 AA.  
 AC AAB19444;  
 XX  
 DT 06-MAR-2001 (first entry)  
 XX  
 DE Primary sequence of a natural omega-conopeptide GVIA/SNX-124.

XX Omega-conopeptide; voltage-gated calcium channel inhibitor; analgesic;  
 KW peptide toxin; opiate; pain; neuronal damage; ischemic condition;  
 KW schizophrenia; tardive dyskinesia; acute dystonic reaction; inflammation;  
 KW epilepsy.  
 XX  
 OS Conus sp.

Key Location/Qualifiers  
 FT Disulfide-bond 1..16  
 FT Modified-site 4 /label= Hyp  
 FT /note= "hydroxyproline"  
 FT Disulfide-bond 8..19  
 FT Modified-site 10 /label= Hyp  
 FT /note= "hydroxyproline"  
 FT Disulfide-bond 15..26  
 FT Modified-site 21 /label= Hyp  
 FT /note= "hydroxyproline"  
 FT Modified-site 27 /note= "amidated C-terminal"

US6136786-A.  
 24-OCT-2000.  
 09-SEP-1999; 99US-00392979.  
 30-DEC-1991; 91US-00814759.  
 15-APR-1993; 93US-00049794.  
 23-JUN-1993; 93US-00081863.  
 03-JUL-1996; 96US-00675354.  
 01-NOV-1996; 96US-00742774.  
 21-AUG-1998; 98US-00138439.  
 23-APR-1999; 99US-00298017.  
 (ELAN-) ELAN PHARM INC.  
 Singh T, Gohil KC, Valentino KL, Miljanich GP, Justice A;  
 WPI; 2001-030946/04.

Enhancing analgesia produced by opiates by administering an omega-conopeptide that inhibits electrically stimulated contraction of guinea pig ileum and binds to omega-conopeptide MVIIA binding sites in neuronal tissues.  
 Disclosure; Fig 1; 59pp; English.

XX The present sequence represents an omega-conopeptide. Omega-conopeptides  
 CC are components of peptide toxins which act as voltage-gated calcium  
 CC channel inhibitors. The peptides are used to enhance the analgesic effect  
 CC produced by an opiate in a mammalian subject. The method comprises  
 CC administering to the subject an omega-conopeptide which is able to  
 CC inhibit electrically stimulated contraction of the guinea pig ileum and  
 CC bind to omega-conopeptide MVIIA binding sites present in neuronal tissue.  
 CC Omega-conopeptides are useful for enhancing the analgesic effect produced  
 CC by an opiate. Omega-conopeptides may also be used in the treatment of  
 CC pain, in reducing neuronal damage related to an ischemic condition in  
 CC mammals, and in treating schizophrenia, tardive dyskinesia and acute  
 CC dystonic reactions, inflammation and epilepsy  
 XX Sequence 27 AA;

Query Match 94.0%; Score 141; DB 4; Length 27;  
 Best Local Similarity 88.9%; Pred. No. 1.1e-09;  
 Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CKXGSSCSXTSYNCRSCNXYTKRCY 27  
 DB 1 CKSPGSSCSPTSYNCRSCNPNYTKRCY 27

RESULT 15  
 AAO15122  
 ID AAO15122 standard; peptide; 27 AA.

XX AAO15122;  
 XX  
 DT 22-AUG-2002 (first entry)  
 XX  
 DE Cone snail w-conotoxin peptide GVIA.

XX Cone snail; venomous saliva; calcium channel blocking activity;  
 KW stenocardia; hypertension; myocarditis; arrhythmia; cerebral ischaemia;  
 KW w-conotoxin.  
 XX

OS Conus sp.  
 XX JP2002080499-A.  
 XX 19-MAR-2002.  
 XX 01-SEP-2000; 2000JP-00266187.  
 XX 01-SEP-2000; 2000JP-00266187.  
 XX (SUNR ) SUNTORY LTD.  
 XX WPI; 2002-421068/45.

A new peptide derived from venomous saliva of assassin bug, has calcium channel blocking activity.

Disclosure; Page 4; 26pp; Japanese.

The invention comprises peptides having calcium channel blocking activities which are derived from the venomous saliva of assassin bugs. The calcium channel blocking peptides of the invention are useful for treating stenocardia, hypertension, myocarditis, arrhythmia and cerebral ischaemia. The present amino acid sequence represents a cone snail w-conotoxin peptide  
 XX Sequence 27 AA;

Query Match 94.0%; Score 141; DB 5; Length 27;  
 Best Local Similarity 88.9%; Pred. No. 1.1e-09;  
 Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

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Search completed: March 23, 2005, 00:03:03  
Job time : 88.3267 secs

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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:51:32 ; Search time 21.8317 Seconds  
(without alignments)  
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Sequence: 1 CKSXGSSCSXSYNCRSCNXYTKRYC 27

Scoring table: BLOSUM62  
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Searched: 513545 seqs, 74649064 residues

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Listing first 45 summaries

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	144	96.0	27	1 US-07-789-913-3	Sequence 3, Appli
2	144	96.0	27	1 US-08-049-794-3	Sequence 3, Appli
3	144	96.0	27	1 US-08-496-847-3	Sequence 3, Appli
4	144	96.0	27	2 US-08-742-774-3	Sequence 3, Appli
5	144	96.0	27	2 US-08-675-354-3	Sequence 3, Appli
6	144	96.0	27	2 US-08-965-918-3	Sequence 3, Appli
7	144	96.0	27	2 US-09-039-168-3	Sequence 3, Appli
8	144	96.0	27	2 US-09-138-439-3	Sequence 3, Appli
9	144	96.0	27	3 US-08-613-400A-3	Sequence 3, Appli
10	144	96.0	27	3 US-09-298-017-3	Sequence 3, Appli
11	144	96.0	27	6 5189020-3	Patent No. 5189020
12	144	96.0	27	6 5189020-3	Patent No. 5189020
13	144	96.0	27	6 5424218-3	Patent No. 5424218
14	144	96.0	27	6 5189020-3	Patent No. 5189020
15	144	96.0	27	6 5424218-3	Patent No. 5424218
16	141	94.0	27	1 US-07-689-693B-4	Sequence 4, Appli
17	141	94.0	27	1 US-07-689-693B-3	Sequence 3, Appli
18	141	94.0	73	1 US-08-624-123-12	Sequence 12, Appl
19	141	94.0	73	5 PCT-US96-05262-13	Sequence 13, Appl
20	120	80.0	27	1 US-07-789-913-7	Sequence 7, Appli
21	120	80.0	27	1 US-08-049-794-7	Sequence 7, Appli
22	120	80.0	27	1 US-08-496-847-7	Sequence 7, Appli
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24	120	80.0	27	2 US-08-675-354-7	Sequence 7, Appli
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29	120	80.0	27	3 US-09-298-017-7	Sequence 7, Appli
30	120	80.0	27	3 US-09-392-979A-7	Sequence 7, Appli
31	120	80.0	27	6 5189020-7	Patent No. 5189020
32	120	80.0	27	6 5424218-7	Patent No. 5424218
33	120	80.0	27	6 5189020-7	Patent No. 5189020
34	120	80.0	27	6 5424218-7	Patent No. 5424218
35	118	78.7	27	1 US-07-789-913-21	Sequence 21, Appl
36	109	72.7	27	1 US-07-789-913-20	Sequence 20, Appl
37	109	72.7	27	1 US-08-049-794-20	Sequence 20, Appl
38	109	72.7	27	1 US-08-496-847-20	Sequence 20, Appl
39	109	72.7	27	2 US-08-742-774-20	Sequence 20, Appl
40	109	72.7	27	2 US-08-675-354-20	Sequence 20, Appl
41	109	72.7	27	2 US-08-965-918-20	Sequence 20, Appl
42	109	72.7	27	2 US-09-138-439-20	Sequence 20, Appl
43	109	72.7	27	3 US-08-613-400A-20	Sequence 20, Appl
44	109	72.7	27	3 US-09-298-017-20	Sequence 20, Appl
45	109	72.7	27	3 US-09-392-979A-20	Sequence 20, Appl

ALIGNMENTS

RESULT 1  
US-07-789-913-3  
; Sequence 3, Application US/07789913  
; Patent No. 5559095  
; GENERAL INFORMATION:  
; APPLICANT: Miljanich, George P.  
; APPLICANT: Bowersox, Stephen S.  
; APPLICANT: Fox, James A.  
; APPLICANT: Valentino, Karen L.  
; APPLICANT: Bitner, Robert S.  
; APPLICANT: Yamashiro, Donald H.  
; TITLE OF INVENTION: Delayed Treatment Method of Reducing Ischemia-Related Neuronal Damage  
; NUMBER OF SEQUENCES: 28  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306

COMPUTER TYPE: Floppy disk  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/789,913  
FILING DATE: 19911112  
CLASSIFICATION: 514  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/561,766  
FILING DATE: 02-AUG-1990  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/440,094  
FILING DATE: 22-NOV-1989  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0005.30  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 3:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 27 amino acids  
TYPE: AMINO ACID  
TOPOLOGY: both  
MOLSCULE TYPE: peptide  
HYPOTHETICAL: NO

; ANTI-SENSE: NO  
; ORIGINAL SOURCE: SNX-124  
; INDIVIDUAL ISOLATE: SNX-124  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 4.5  
; OTHER INFORMATION: /note= "where Xaa is  
; OTHER INFORMATION: hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 10.11  
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; NAME/KEY: Modified-site  
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Query Match 96.0%; Score 144; DB 1; Length 27;  
Best Local Similarity 100.0%; Pred. No. 1.5e-10;  
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCSCNXYTKRCY 27  
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DB 1 CKSXGSSCSXTSYNCCSCNXYTKRCY 27  
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RESULT 2  
US-08-049-794-3  
; Sequence 3, Application US/08049794  
; Patent No. 5587454  
; GENERAL INFORMATION:  
; APPLICANT: JUSTICE, ALAN  
; APPLICANT: SINGH, TEJINDER  
; APPLICANT: GOHIL, KISHOR C  
; APPLICANT: VALENTINO, KAREN L  
; APPLICANT: MILJANICH, GEORGE P  
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
; NUMBER OF SEQUENCES: 34  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/049,794  
; FILING DATE: 19930415  
; CLASSIFICATION: 514  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/814,759  
; FILING DATE: 30-DEC-1991  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0009.30  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 3:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 27 amino acids  
; TYPE: AMINO ACID  
; TOPOLOGY: linear

; MOLECULE TYPE: protein  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE: GVIA/SNX-124, FIGURE 1  
; INDIVIDUAL ISOLATE: GVIA/SNX-124, FIGURE 1  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 4  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 10  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 21  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; US-08-049-794-3

Query Match 96.0%; Score 144; DB 1; Length 27;  
Best Local Similarity 100.0%; Pred. No. 1.5e-10;  
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCSCNXYTKRCY 27  
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DB 1 CKSXGSSCSXTSYNCCSCNXYTKRCY 27  
|||||

RESULT 3  
US-08-496-847-3  
; Sequence 3, Application US/08496847  
; Patent No. 5795864  
; GENERAL INFORMATION:  
; APPLICANT: Amstutz, Gary A.  
; APPLICANT: Bowersox, Stephen S.  
; APPLICANT: Gohil, Kishorchandra  
; APPLICANT: Adriaenssens, Peter I.  
; APPLICANT: Kristipati, Ramasharma  
; TITLE OF INVENTION: METHODS AND  
; TITLE OF INVENTION: FORMULATIONS FOR PREVENTING PROGRESSION OF NEUROPATHIC PAIN  
; NUMBER OF SEQUENCES: 36  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Dehlinger & Associates  
; STREET: 350 Cambridge Avenue, Suite 250  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: US  
; ZIP: 94306-1546  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Diskette  
; COMPUTER: IBM Compatible  
; OPERATING SYSTEM: DOS  
; SOFTWARE: FastSeq for Windows Version 2.0  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/496,847  
; FILING DATE: 27-JUN-1995  
; CLASSIFICATION: 514  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0009.31  
; TELEPHONE: 650-324-0880  
; TELEFAX: 650-324-0960  
; INFORMATION FOR SEQ ID NO: 3:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 27 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE: GVIA/SNX-124, FIGURE 1  
; INDIVIDUAL ISOLATE: GVIA/SNX-124, FIGURE 1  
; FEATURE:

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; NAME/KEY: Modified-site
; LOCATION: 4
; OTHER INFORMATION: /note= "where X is hydroxyproline"
; FEATURE:
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; LOCATION: 10
; OTHER INFORMATION: /note= "where X is hydroxyproline"
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 21
; OTHER INFORMATION: /note= "where X is hydroxyproline"
US-08-496-847-3
Query Match 96.0%; Score 144; DB 1; Length 27;
Best Local Similarity 100.0%; Pred. No. 1.5e-10;
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db 1 CKXGSGCSXTSYNCCRSNCXYTKRCY 27

RESULT 4
US-08-742-774-3
; Sequence 3, Application US/08742774
; Patent No. 5824645
; GENERAL INFORMATION:
; APPLICANT: JUSTICE, ALAN
; APPLICANT: SINGH, TEJINDER
; APPLICANT: GOHIL, KISHOR C
; APPLICANT: VALENTINO, KAREN L
; APPLICANT: MILJANICH, GEORGE P
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA
; NUMBER OF SEQUENCES: 34
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Law Offices of Peter Dehlinger
; STREET: 350 Cambridge Avenue, Suite 300
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/742,774
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 08/675,354
; FILING DATE: 03-JUL-1996
; APPLICATION NUMBER: US/08/049,794
; FILING DATE: 1993-APR-15
; APPLICATION NUMBER: US 07/814,759
; FILING DATE: 30-DEC-1991
; ATTORNEY/AGENT INFORMATION:
; NAME: Stratford, Carol A.
; REGISTRATION NUMBER: 34,444
; REFERENCE/DOCKET NUMBER: 5865-0009.30
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (415) 324-0880
; TELEFAX: (415) 324-0960
; INFORMATION FOR SEQ ID NO: 3:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 27 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
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; INDIVIDUAL ISOLATE: GVIA/SNX-124, FIGURE 1
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 4
; OTHER INFORMATION: /note= "where X is hydroxyproline"
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 10
; OTHER INFORMATION: /note= "where X is hydroxyproline"
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 21
; OTHER INFORMATION: /note= "where X is hydroxyproline"
US-08-742-774-3
Query Match 96.0%; Score 144; DB 2; Length 27;
Best Local Similarity 100.0%; Pred. No. 1.5e-10;
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKXGSGCSXTSYNCCRSNCXYTKRCY 27
Db 1 CKXGSGCSXTSYNCCRSNCXYTKRCY 27

RESULT 5
US-08-675-354-3
; Sequence 3, Application US/08675354
; Patent No. 5859186
; GENERAL INFORMATION:
; APPLICANT: JUSTICE, ALAN
; APPLICANT: SINGH, TEJINDER
; APPLICANT: GOHIL, KISHOR C
; APPLICANT: VALENTINO, KAREN L
; APPLICANT: MILJANICH, GEORGE P
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA
; NUMBER OF SEQUENCES: 34
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Law Offices of Peter Dehlinger
; STREET: 350 Cambridge Avenue, Suite 300
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/675,354
; FILING DATE: 03-JUL-1996
; CLASSIFICATION: 530
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US/08/049,794
; FILING DATE: 1993-APR-15
; APPLICATION NUMBER: US 07/814,759
; FILING DATE: 30-DEC-1991
; ATTORNEY/AGENT INFORMATION:
; NAME: Stratford, Carol A.
; REGISTRATION NUMBER: 34,444
; REFERENCE/DOCKET NUMBER: 5865-0009.30
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (415) 324-0880
; TELEFAX: (415) 324-0960
; INFORMATION FOR SEQ ID NO: 3:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 27 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
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; INDIVIDUAL ISOLATE: GVIA/SNX-124, FIGURE 1
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 4
; OTHER INFORMATION: /note= "where X is hydroxyproline"
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 10
; OTHER INFORMATION: /note= "where X is hydroxyproline"
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 21
; OTHER INFORMATION: /note= "where X is hydroxyproline"
US-08-675-354-3

Query Match          96.0%; Score 144; DB 2; Length 27;
Best Local Similarity 100.0%; Pred. No. 1.5e-10;
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCRSNCNXYTKRCY 27
Db 1 CKSXGSSCSXTSYNCCRSNCNXYTKRCY 27

RESULT 6
US-08-965-918-3
; Sequence 3, Application US/08965918
; Patent No. 5891849
; GENERAL INFORMATION:
; APPLICANT: Amstutz, Gary A.
; APPLICANT: Bowersox, Stephen S.
; APPLICANT: Gohil, Kishorchandra
; APPLICANT: Adriaenssens, Peter I.
; APPLICANT: Kristipati, Ramasharma
; TITLE OF INVENTION: METHODS AND FORMULATIONS FOR PREVENTING
; TITLE OF INVENTION: PROGRESSION OF NEUROPATHIC PAIN
; NUMBER OF SEQUENCES: 36
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Dehlinger & Associates
; STREET: 350 Cambridge Avenue, Suite 250
; CITY: Palo Alto
; STATE: CA
; COUNTRY: US
; ZIP: 94306-1546
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette
; COMPUTER: IBM Compatible
; OPERATING SYSTEM: DOS
; SOFTWARE: FastSeq for Windows Version 2.0
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/965,918
; FILING DATE: 07-NOV-1997
; CLASSIFICATION: 514
; ATTORNEY/AGENT INFORMATION:
; NAME: Mohr, Judy M.
; REGISTRATION NUMBER: 38,563
; REFERENCE/DOCKET NUMBER: 5865-0009.34
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650-324-0880
; TELEFAX: 650-324-0960
; INFORMATION FOR SEQ ID NO: 3:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 27 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: GVIA/SNX-124, FIGURE 1
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 4
; OTHER INFORMATION: /note= "where X is hydroxyproline"
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; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 10
; OTHER INFORMATION: /note= "where X is hydroxyproline"
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 21
; OTHER INFORMATION: /note= "where X is hydroxyproline"
US-08-965-918-3

Query Match          96.0%; Score 144; DB 2; Length 27;
Best Local Similarity 100.0%; Pred. No. 1.5e-10;
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCRSNCNXYTKRCY 27
Db 1 CKSXGSSCSXTSYNCCRSNCNXYTKRCY 27

RESULT 7
US-09-039-168-3
; Sequence 3, Application US/09039168
; Patent No. 5965534
; GENERAL INFORMATION:
; APPLICANT: Pang, Iok-Hou; Kapin, Michael and Hellberg,
; APPLICANT: Mark
; TITLE OF INVENTION: The Use of w-Conotoxin Analogs For
; TITLE OF INVENTION: Treating Retinal and Optic Nerve Head Damage
; NUMBER OF SEQUENCES: 7
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Alcon Laboratories, Inc.
; STREET: 6201 South Freeway, Patent Legal
; CITY: Fort Worth
; STATE: Texas
; COUNTRY: USA
; ZIP: 76134-2099
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 1.2 mg, 3.25" floppy disk
; COMPUTER: Compaq Deskpro XE 560
; OPERATING SYSTEM: Microsoft Windows for Workgroups,
; OPERATING SYSTEM: Version 3.11
; SOFTWARE: Microsoft Word 6.0
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/039,168
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 08/562,142
; FILING DATE: No. 5965534ember 22, 1995
; ATTORNEY/AGENT INFORMATION:
; NAME: MAYO, MICHAEL C.
; REGISTRATION NUMBER: 38,545
; REFERENCE/DOCKET NUMBER: 1462
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (817) 551-4321
; TELEFAX: (817) 551-4610
; INFORMATION FOR SEQ ID NO: 3:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 27 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: unknown
; MOLECULE TYPE: peptide
; DESCRIPTION:
; HYPOTHETICAL: NO
; ANTI-SENSE: NO
US-09-039-168-3

Query Match          96.0%; Score 144; DB 2; Length 27;
Best Local Similarity 100.0%; Pred. No. 1.5e-10;
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCRSNCNXYTKRCY 27
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Db 1 CKSXGSSCSXTSYNCCRSNCXYTKRCY 27

RESULT 8  
US-09-138-439-3  
; Sequence 3, Application US/09138439  
; Patent No. 5994305  
; GENERAL INFORMATION:  
; APPLICANT: JUSTICE, ALAN  
; APPLICANT: SINGH, TEJINDER  
; APPLICANT: GOHIL, KISHOR C  
; APPLICANT: VALENTINO, KAREN L  
; APPLICANT: MILJANICH, GEORGE P  
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
; NUMBER OF SEQUENCES: 34  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/09/138,439  
; FILING DATE:  
; CLASSIFICATION:  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US/08/049,794  
; FILING DATE: 1993-04-15  
; APPLICATION NUMBER: US 07/814,759  
; FILING DATE: 30-DEC-1991  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0009.30  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 3:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 27 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: GVIA/SNX-124, FIGURE 1  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 4  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 10  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 21  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; US-09-138-439-3

Query Match 96.0%; Score 144; DB 2; Length 27;  
Best Local Similarity 100.0%; Pred. No. 1.5e-10;  
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCRSNCXYTKRCY 27

Db 1 CKSXGSSCSXTSYNCCRSNCXYTKRCY 27

RESULT 9  
US-08-613-400A-3  
; Sequence 3, Application US/08613400A  
; Patent No. 6054429  
; GENERAL INFORMATION:  
; APPLICANT: Bowersox, S. Scott  
; APPLICANT: Gadbois, Theresa  
; APPLICANT: Pettus, Mark, R.  
; APPLICANT: Luther, Robert, R.  
; TITLE OF INVENTION: IMPROVED EPIDURAL  
; TITLE OF INVENTION: METHOD OF PRODUCING ANALGESIA  
; NUMBER OF SEQUENCES: 36  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Dehlinger & Associates  
; STREET: 350 Cambridge Avenue, Suite 250  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: US  
; ZIP: 94306-1546  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Diskette  
; COMPUTER: IBM Compatible  
; OPERATING SYSTEM: DOS  
; SOFTWARE: FastSeq for Windows Version 2.0  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/613,400A  
; FILING DATE: 08-MAR-1996  
; CLASSIFICATION: 514  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER:  
; FILING DATE:  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0019  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 650-324-0880  
; TELEFAX: 650-324-0960  
; INFORMATION FOR SEQ ID NO: 3:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 27 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: GVIA/SNX-124, FIGURE 1  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 4  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 10  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 21  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; US-08-613-400A-3

Query Match 96.0%; Score 144; DB 3; Length 27;  
Best Local Similarity 100.0%; Pred. No. 1.5e-10;  
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db 1 CKSXGSSCSXTSYNCCRSNCXYTKRCY 27

RESULT 10  
US-09-298-017-3  
; Sequence 3, Application US/09298017  
; Patent No. 6087091  
; GENERAL INFORMATION:  
; APPLICANT: JUSTICE, ALAN  
; APPLICANT: SINGH, TEJINDER  
; APPLICANT: GOHIL, KISHOR C  
; APPLICANT: VALENTINO, KAREN L  
; APPLICANT: MILJANICH, GEORGE P  
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
; NUMBER OF SEQUENCES: 34  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/09/298,017  
; FILING DATE:  
; CLASSIFICATION:  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 08/049,794  
; FILING DATE:  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0009.30  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 3:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 27 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: GVIA/SNX-124, FIGURE 1  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 4  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 10  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 21  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-09-298-017-3

Query Match 96.0%; Score 144; DB 3; Length 27;  
Best Local Similarity 100.0%; Pred. No. 1.5e-10;  
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CKSXGSSCSXTSYNCCRSNXYTKCY 27  
DB 1 CKSXGSSCSXTSYNCCRSNXYTKCY 27

RESULT 11

US-09-392-979A-3  
; Sequence 3, Application US/09392979A  
; Patent No. 6136786  
; GENERAL INFORMATION:  
; APPLICANT: JUSTICE, ALAN  
; APPLICANT: SINGH, TEJINDER  
; APPLICANT: GOHIL, KISHOR C  
; APPLICANT: VALENTINO, KAREN L  
; APPLICANT: MILJANICH, GEORGE P  
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
; NUMBER OF SEQUENCES: 34  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/09/392,979A  
; FILING DATE:  
; CLASSIFICATION:  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US/08/049,794  
; FILING DATE: 1993-04-15  
; APPLICATION NUMBER: US 07/814,759  
; FILING DATE: 30-DEC-1991  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0009.30  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 3:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 27 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; HYPOTHETICAL: NO  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: GVIA/SNX-124, FIGURE 1  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 4  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 10  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
; FEATURE:  
; NAME/KEY: Modified-site  
; LOCATION: 21  
; OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-09-392-979A-3

Query Match 96.0%; Score 144; DB 3; Length 27;  
Best Local Similarity 100.0%; Pred. No. 1.5e-10;  
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
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DB 1 CKSXGSSCSXTSYNCCRSNXYTKCY 27

RESULT 12

5189020-3  
; Patent No. 5189020  
; APPLICANT: Miljanich, George P.; Bitner, Robert S.; Bowersox,  
; Stephen S.; Fox, James A.; Valentino, Karen L.; Yamashiro, Donald  
; H.; Teubokawa, Makoto  
; TITLE OF INVENTION: METHOD OF REDUCING NEURONAL DAMAGE USING  
; OMEGA CONOTOXIN PEPTIDES  
; NUMBER OF SEQUENCES: 29  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/07/561,766  
; FILING DATE: 02-AUG-1990  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 440,094  
; FILING DATE: 22-NOV-1989  
; SEQ ID NO:3:  
; LENGTH: 27  
5189020-3

Query Match 96.0%; Score 144; DB 6; Length 27;  
Best Local Similarity 100.0%; Pred. No. 1.5e-10;  
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CKSXGSSCSXTSYNCCRSNCXYTKRCY 27  
Db 1 CKSXGSSCSXTSYNCCRSNCXYTKRCY 27

RESULT 13  
5424218-3  
; Patent No. 5424218  
; APPLICANT: Miljanich, George P.; Bitner, Robert S.; Bowersox,  
; Stephen S.; Fox, James A.; Valentino, Karen L.; Yamashiro, Donald H.  
; TITLE OF INVENTION: SCREENING METHOD FOR NEUROPROTECTIVE COMPOUNDS  
; NUMBER OF SEQUENCES: 21  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/147,714  
; FILING DATE: 04-NOV-1993  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 855,269  
; FILING DATE: 23-MAR-1992  
; APPLICATION NUMBER: 561,766  
; FILING DATE: 02-AUG-1990  
; APPLICATION NUMBER: 440,094  
; FILING DATE: 22-NOV-1989  
; SEQ ID NO:3:  
; LENGTH: 27  
5424218-3

Query Match 96.0%; Score 144; DB 6; Length 27;  
Best Local Similarity 100.0%; Pred. No. 1.5e-10;  
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CKSXGSSCSXTSYNCCRSNCXYTKRCY 27  
Db 1 CKSXGSSCSXTSYNCCRSNCXYTKRCY 27

RESULT 14  
5189020-3  
; Patent No. 5189020  
; APPLICANT: Miljanich, George P.; Bitner, Robert S.; Bowersox,  
; Stephen S.; Fox, James A.; Valentino, Karen L.; Yamashiro, Donald  
; H.; Teubokawa, Makoto  
; TITLE OF INVENTION: METHOD OF REDUCING NEURONAL DAMAGE USING  
; OMEGA CONOTOXIN PEPTIDES  
; NUMBER OF SEQUENCES: 29  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/07/561,766  
; FILING DATE: 02-AUG-1990  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 440,094  
; FILING DATE: 22-NOV-1989  
; SEQ ID NO:3:

5189020-3  
; LENGTH: 27  
Query Match 96.0%; Score 144; DB 6; Length 27;  
Best Local Similarity 100.0%; Pred. No. 1.5e-10;  
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CKSXGSSCSXTSYNCCRSNCXYTKRCY 27  
Db 1 CKSXGSSCSXTSYNCCRSNCXYTKRCY 27

RESULT 15  
5424218-3  
; Patent No. 5424218  
; APPLICANT: Miljanich, George P.; Bitner, Robert S.; Bowersox,  
; Stephen S.; Fox, James A.; Valentino, Karen L.; Yamashiro, Donald H.  
; TITLE OF INVENTION: SCREENING METHOD FOR NEUROPROTECTIVE COMPOUNDS  
; NUMBER OF SEQUENCES: 21  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/147,714  
; FILING DATE: 04-NOV-1993  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 855,269  
; FILING DATE: 23-MAR-1992  
; APPLICATION NUMBER: 561,766  
; FILING DATE: 02-AUG-1990  
; APPLICATION NUMBER: 440,094  
; FILING DATE: 22-NOV-1989  
; SEQ ID NO:3:  
; LENGTH: 27  
5424218-3

Query Match 96.0%; Score 144; DB 6; Length 27;  
Best Local Similarity 100.0%; Pred. No. 1.5e-10;  
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CKSXGSSCSXTSYNCCRSNCXYTKRCY 27  
Db 1 CKSXGSSCSXTSYNCCRSNCXYTKRCY 27

Search completed: March 23, 2005, 00:20:48  
Job time : 21.8317 secs

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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 23:46:47 ; Search time 61.5743 Seconds  
(without alignments)  
144.941 Million cell updates/sec

Title: US-09-787-082A-12  
Perfect score: 150  
Sequence: 1 CKSXGSSCSXTSYNCRSCNXYTKRCY 27

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1401741 seqs, 330541175 residues

Total number of hits satisfying chosen parameters: 1401741

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

- Database : Published Applications\_AA.\*
- 1: /cgn2\_6/ptodata/2/pubpaa/US07\_PUBCOMB.pep.\*
  - 2: /cgn2\_6/ptodata/2/pubpaa/PCT\_NEW\_PUB.pep.\*
  - 3: /cgn2\_6/ptodata/2/pubpaa/US06\_PUBCOMB.pep.\*
  - 4: /cgn2\_6/ptodata/2/pubpaa/US06\_PUBCOMB.pep.\*
  - 5: /cgn2\_6/ptodata/2/pubpaa/US07\_NEW\_PUB.pep.\*
  - 6: /cgn2\_6/ptodata/2/pubpaa/PCTUS\_PUBCOMB.pep.\*
  - 7: /cgn2\_6/ptodata/2/pubpaa/US08\_NEW\_PUB.pep.\*
  - 8: /cgn2\_6/ptodata/2/pubpaa/US08\_PUBCOMB.pep.\*
  - 9: /cgn2\_6/ptodata/2/pubpaa/US09\_PUBCOMB.pep.\*
  - 10: /cgn2\_6/ptodata/2/pubpaa/US09\_PUBCOMB.pep.\*
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  - 13: /cgn2\_6/ptodata/2/pubpaa/US10\_PUBCOMB.pep.\*
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  - 15: /cgn2\_6/ptodata/2/pubpaa/US10\_PUBCOMB.pep.\*
  - 16: /cgn2\_6/ptodata/2/pubpaa/US10\_PUBCOMB.pep.\*
  - 17: /cgn2\_6/ptodata/2/pubpaa/US10\_PUBCOMB.pep.\*
  - 18: /cgn2\_6/ptodata/2/pubpaa/US11\_NEW\_PUB.pep.\*
  - 19: /cgn2\_6/ptodata/2/pubpaa/US60\_NEW\_PUB.pep.\*
  - 20: /cgn2\_6/ptodata/2/pubpaa/US60\_PUBCOMB.pep.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	141	94.0	73	10	US-09-910-082A-142
2	141	94.0	73	16	US-10-765-926-142
3	136	90.7	27	10	US-09-910-082A-356
4	136	90.7	27	16	US-10-765-926-356
5	136	90.7	73	10	US-09-910-082A-136
6	136	90.7	73	16	US-10-765-926-136
7	121	80.7	26	10	US-09-910-082A-145
8	121	80.7	26	16	US-10-765-926-145
9	121	80.7	27	10	US-09-910-082A-143
10	121	80.7	27	16	US-10-765-926-143
11	121	80.7	28	10	US-09-910-082A-144
12	121	80.7	28	16	US-10-765-926-144
13	117	78.0	73	10	US-09-910-082A-286

14	117	78.0	73	16	US-10-765-926-286	Sequence 286, App
15	116	77.3	27	10	US-09-910-082A-137	Sequence 137, App
16	116	77.3	27	16	US-10-765-926-137	Sequence 137, App
17	112	74.7	30	10	US-09-910-082A-364	Sequence 364, App
18	112	74.7	30	16	US-10-765-926-364	Sequence 364, App
19	112	74.7	75	10	US-09-910-082A-178	Sequence 178, App
20	112	74.7	75	16	US-10-765-926-178	Sequence 178, App
21	107	71.3	73	10	US-09-910-082A-283	Sequence 283, App
22	107	71.3	73	16	US-10-765-926-283	Sequence 283, App
23	104	69.3	27	10	US-09-910-082A-287	Sequence 287, App
24	104	69.3	27	16	US-10-765-926-287	Sequence 287, App
25	102	68.0	29	10	US-09-910-082A-158	Sequence 158, App
26	102	68.0	29	16	US-10-765-926-158	Sequence 158, App
27	101	67.3	29	10	US-09-910-082A-368	Sequence 368, App
28	101	67.3	29	16	US-10-765-926-368	Sequence 368, App
29	101	67.3	75	10	US-09-910-082A-157	Sequence 157, App
30	101	67.3	75	16	US-10-765-926-157	Sequence 157, App
31	100	66.7	26	10	US-09-910-082A-413	Sequence 413, App
32	100	66.7	26	16	US-10-765-926-413	Sequence 413, App
33	98	65.3	30	10	US-09-910-082A-179	Sequence 179, App
34	98	65.3	30	16	US-10-765-926-179	Sequence 179, App
35	98	65.3	72	10	US-09-910-082A-232	Sequence 232, App
36	98	65.3	72	16	US-10-765-926-232	Sequence 232, App
37	97	64.7	27	10	US-09-910-082A-284	Sequence 284, App
38	97	64.7	27	16	US-10-765-926-284	Sequence 284, App
39	85.5	57.0	27	10	US-09-910-082A-398	Sequence 398, App
40	85.5	57.0	27	16	US-10-765-926-398	Sequence 398, App
41	85.5	57.0	73	10	US-09-910-082A-244	Sequence 244, App
42	85.5	57.0	73	16	US-10-765-926-244	Sequence 244, App
43	85	56.7	27	10	US-09-910-082A-233	Sequence 233, App
44	85	56.7	27	16	US-10-765-926-233	Sequence 233, App
45	81.5	54.3	25	10	US-09-910-082A-379	Sequence 379, App

ALIGNMENTS

RESULT 1  
US-09-910-082A-142  
; Sequence 142, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910, 082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 142  
; LENGTH: 73  
; TYPE: PRT  
; ORGANISM: Conus geographus  
US-09-910-082A-142  
Query Match 94.0%; Score 141; DB 10; Length 73;  
Best Local Similarity 88.9%; Pred. No. 2.4e-09;  
Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;  
QY 1 CKSXGSSCSXTSYNCRSCNXYTKRCY 27

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Db 46 CKSPGSSCSTSYNCCRSNPNYTKRCY 72
|||||
TYPE: PRT
ORGANISM: Conus geographus
US-09-910-082A-356

Query Match 90.7%; Score 136; DB 10; Length 27;
Best Local Similarity 85.2%; Pred. No. 4.1e-09;
Matches 23; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCRSNPNYTKRCY 27
Db 1 CKSPGSSCSTSYNCCRSNPNYTKRCY 27

RESULT 4
US-10-765-926-356
; Sequence 356, Application US/10765926
; Publication No. US20040132663A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/10/765,926
; PRIOR FILING DATE: 2004-01-29
; PRIOR APPLICATION NUMBER: US 09/910,082
; PRIOR FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 142
; LENGTH: 73
; TYPE: PRT
; ORGANISM: Conus geographus
US-10-765-926-142

Query Match 94.0%; Score 141; DB 16; Length 73;
Best Local Similarity 88.9%; Pred. No. 2.4e-09;
Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCRSNPNYTKRCY 27
Db 46 CKSPGSSCSTSYNCCRSNPNYTKRCY 72

RESULT 3
US-09-910-082A-356
; Sequence 356, Application US/09910082A
; Publication No. US20030119731A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/09/910,082A
; CURRENT FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 356
; LENGTH: 27
; TYPE: PRT
; ORGANISM: Conus geographus
US-10-765-926-356

Query Match 90.7%; Score 136; DB 16; Length 27;
Best Local Similarity 85.2%; Pred. No. 4.1e-09;
Matches 23; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCRSNPNYTKRCY 27
Db 1 CKSPGSSCSTSYNCCRSNPNYTKRCY 27

RESULT 5
US-09-910-082A-136
; Sequence 136, Application US/09910082A
; Publication No. US20030119731A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/09/910,082A
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; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 136  
; LENGTH: 73  
; TYPE: PRT  
; ORGANISM: Conus geographus  
US-09-910-082A-136

Query Match 90.7%; Score 136; DB 10; Length 73;  
Best Local Similarity 85.2%; Pred. No. 9.1e-09;  
Matches 23; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCRSNCXYTKRCY 27  
DB 46 CKSPGSSCSPTSYNCCRSNCNPKRCY 72

## RESULT 6

US-10-765-926-136  
; Sequence 136, Application US/10765926  
; Publication No. US20040132663A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/10/765,926  
; CURRENT FILING DATE: 2004-01-29  
; PRIOR APPLICATION NUMBER: US 09/910,082  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 136  
; LENGTH: 73  
; TYPE: PRT  
; ORGANISM: Conus geographus  
US-10-765-926-136

Query Match 90.7%; Score 136; DB 16; Length 73;  
Best Local Similarity 85.2%; Pred. No. 9.1e-09;  
Matches 23; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCRSNCXYTKRCY 27  
DB 46 CKSPGSSCSPTSYNCCRSNCNPKRCY 72

## RESULT 7

US-09-910-082A-145  
; Sequence 145, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael

; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 145  
; LENGTH: 26  
; TYPE: PRT  
; ORGANISM: Conus geographus  
; FEATURE:  
; NAME/KEY: PEPTIDE  
; LOCATION: (1)..(26)  
; OTHER INFORMATION: Xaa at residue 4, 10 and 21 is Pro or Hyp; Xaa at residue 13 and  
; OTHER INFORMATION: 22 is Tyr, 125I-Tyr, mono-iodo-Tyr, di-iodo-Tyr, O-sulpho-Tyr or  
; OTHER INFORMATION: O-phospho-Tyr  
US-09-910-082A-145

Query Match 80.7%; Score 121; DB 10; Length 26;  
Best Local Similarity 92.3%; Pred. No. 2.2e-07;  
Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCRSNCXYTKRC 26  
DB 1 CKSXGSSCSXTSYNCCRSNCXYTKRC 26

## RESULT 8

US-10-765-926-145  
; Sequence 145, Application US/10765926  
; Publication No. US20040132663A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/10/765,926  
; CURRENT FILING DATE: 2004-01-29  
; PRIOR APPLICATION NUMBER: US 09/910,082  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 145  
; LENGTH: 26  
; TYPE: PRT  
; ORGANISM: Conus geographus  
; FEATURE:  
; NAME/KEY: PEPTIDE  
; LOCATION: (1)..(26)  
; OTHER INFORMATION: Xaa at residue 4, 10 and 21 is Pro or Hyp; Xaa at  
; OTHER INFORMATION: residue 13 and 22 is Tyr, 125I-Tyr, mono-iodo-Tyr,

; OTHER INFORMATION: di-iodo-Tyr, O-sulpho-Tyr or O-phospho-Tyr  
US-10-765-926-145

Query Match 80.7%; Score 121; DB 16; Length 26;  
Best Local Similarity 92.3%; Pred. No. 2.2e-07;  
Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCRSCSNXYTKRC 26  
|||||  
DB 1 CKSXGSSCSXTSYNCRSCSNXYTKRC 26

## RESULT 9

US-09-910-082A-143  
; Sequence 143, Application US/09910082A  
; Publication No. US20030119731A1

; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward

; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 143

; TYPE: PRT  
; ORGANISM: Conus geographus  
; FEATURE:  
; NAME/KEY: PEPTIDE  
; LOCATION: (1)..(27)

; OTHER INFORMATION: Xaa at residue 4, 10 and 21 is Pro or Hyp; Xaa at residue 13, 22  
; OTHER INFORMATION: and 27 is Tyr, 125I-Tyr, mono-iodo-Tyr, di-iodo-Tyr, O-sulpho-Tyr  
; OTHER INFORMATION: or O-phospho-Tyr  
US-09-910-082A-143

Query Match 80.7%; Score 121; DB 10; Length 27;  
Best Local Similarity 92.3%; Pred. No. 2.2e-07;  
Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCRSCSNXYTKRC 26  
|||||  
DB 1 CKSXGSSCSXTSYNCRSCSNXYTKRC 26

## RESULT 10

US-10-765-926-143  
; Sequence 143, Application US/10765926  
; Publication No. US20040132663A1

; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward

; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/10/765,926  
; CURRENT FILING DATE: 2004-01-29  
; PRIOR APPLICATION NUMBER: US 09/910,082  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 143

; LENGTH: 27  
; TYPE: PRT  
; ORGANISM: Conus geographus  
; FEATURE:  
; NAME/KEY: PEPTIDE  
; LOCATION: (1)..(27)

; OTHER INFORMATION: Xaa at residue 4, 10 and 21 is Pro or Hyp; Xaa at  
; OTHER INFORMATION: residue 13, 22 and 27 is Tyr, 125I-Tyr,  
; OTHER INFORMATION: mono-iodo-Tyr, di-iodo-Tyr, O-sulpho-Tyr  
; OTHER INFORMATION: or O-phospho-Tyr  
US-10-765-926-143

Query Match 80.7%; Score 121; DB 16; Length 27;  
Best Local Similarity 92.3%; Pred. No. 2.2e-07;  
Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCRSCSNXYTKRC 26  
|||||  
DB 1 CKSXGSSCSXTSYNCRSCSNXYTKRC 26

## RESULT 11

US-09-910-082A-144  
; Sequence 144, Application US/09910082A  
; Publication No. US20030119731A1

; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward

; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 144

; LENGTH: 28  
; TYPE: PRT  
; ORGANISM: Conus geographus  
; FEATURE:  
; NAME/KEY: PEPTIDE  
; LOCATION: (1)..(28)

; OTHER INFORMATION: Xaa at residue 4, 10 and 21 is Pro or Hyp; Xaa at residue 13, 22  
; OTHER INFORMATION: and 27 is Tyr, 125I-Tyr, mono-iodo-Tyr, di-iodo-Tyr, O-sulpho-Tyr  
; OTHER INFORMATION: or O-phospho-Tyr  
US-09-910-082A-144

Query Match 80.7%; Score 121; DB 10; Length 28;  
Best Local Similarity 92.3%; Pred. No. 2.3e-07;

Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCRSNCXYTKRC 26  
 |||||  
 DB 1 CKSXGSSCSXTSYNCCRSNCXYTKRC 26  
 |||||

RESULT 12  
 US-10-765-926-144  
 ; Sequence 144, Application US/10765926  
 ; Publication No. US20040132663A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: University of Utah Research Foundation  
 ; APPLICANT: Cognetix, Inc.  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Garrett, James E.  
 ; APPLICANT: Shon, Ki-Joon  
 ; APPLICANT: Jacobsen, Richard  
 ; APPLICANT: Jones, Robert M.  
 ; APPLICANT: Cartier, G. Edward  
 ; TITLE OF INVENTION: Omega-Conopeptides  
 ; FILE REFERENCE: 2314-241  
 ; CURRENT APPLICATION NUMBER: US/10/765,926  
 ; CURRENT FILING DATE: 2004-01-29  
 ; PRIOR APPLICATION NUMBER: US 09/910,082  
 ; PRIOR FILING DATE: 2001-07-23  
 ; PRIOR APPLICATION NUMBER: US 60/219,616  
 ; PRIOR FILING DATE: 2000-07-21  
 ; PRIOR APPLICATION NUMBER: US 60/265,888  
 ; PRIOR FILING DATE: 2001-02-05  
 ; NUMBER OF SEQ ID NOS: 413  
 ; SOFTWARE: PatentIn version 3.0  
 ; SEQ ID NO 144  
 ; LENGTH: 28  
 ; TYPE: PRT  
 ; ORGANISM: Conus geographus  
 ; FEATURE:  
 ; NAME/KEY: PEPTIDE  
 ; LOCATION: (1)..(28)  
 ; OTHER INFORMATION: Xaa at residue 4, 10 and 21 is Pro or Hyp; Xaa at  
 ; OTHER INFORMATION: residue 13, 22 and 27 is Tyr, 125I-Tyr,  
 ; OTHER INFORMATION: mono-Iodo-Tyr, di-Iodo-Tyr, O-sulpho-Tyr  
 ; OTHER INFORMATION: or O-phospho-Tyr  
 US-10-765-926-144

Query Match 80.7%; Score 121; DB 16; Length 28;  
 Best Local Similarity 92.3%; Pred. No. 2.3e-07;  
 Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCRSNCXYTKRC 26  
 |||||  
 DB 1 CKSXGSSCSXTSYNCCRSNCXYTKRC 26  
 |||||

RESULT 13  
 US-09-910-082A-286  
 ; Sequence 286, Application US/09910082A  
 ; Publication No. US20030119731A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: University of Utah Research Foundation  
 ; APPLICANT: Cognetix, Inc.  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Garrett, James E.  
 ; APPLICANT: Shon, Ki-Joon  
 ; APPLICANT: Jacobsen, Richard  
 ; APPLICANT: Jones, Robert M.  
 ; APPLICANT: Cartier, G. Edward  
 ; TITLE OF INVENTION: Omega-Conopeptides  
 ; FILE REFERENCE: 2314-241

Query Match 80.7%; Score 117; DB 16; Length 73;  
 Best Local Similarity 73.1%; Pred. No. 1.4e-06;  
 Matches 19; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCRSNCXYTKRC 26  
 |||||  
 DB 46 CLSPGSSCSPTSYNCCRSNCNPYSRKC 71  
 |||||

RESULT 14  
 US-10-765-926-286  
 ; Sequence 286, Application US/10765926  
 ; Publication No. US20040132663A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: University of Utah Research Foundation  
 ; APPLICANT: Cognetix, Inc.  
 ; APPLICANT: Olivera, Baldomero M.  
 ; APPLICANT: McIntosh, J. Michael  
 ; APPLICANT: Watkins, Maren  
 ; APPLICANT: Garrett, James E.  
 ; APPLICANT: Shon, Ki-Joon  
 ; APPLICANT: Jacobsen, Richard  
 ; APPLICANT: Jones, Robert M.  
 ; APPLICANT: Cartier, G. Edward  
 ; TITLE OF INVENTION: Omega-Conopeptides  
 ; FILE REFERENCE: 2314-241  
 ; CURRENT APPLICATION NUMBER: US/10/765,926  
 ; CURRENT FILING DATE: 2004-01-29  
 ; PRIOR APPLICATION NUMBER: US 09/910,082  
 ; PRIOR FILING DATE: 2001-07-23  
 ; PRIOR APPLICATION NUMBER: US 60/219,616  
 ; PRIOR FILING DATE: 2000-07-21  
 ; PRIOR APPLICATION NUMBER: US 60/265,888  
 ; PRIOR FILING DATE: 2001-02-05  
 ; NUMBER OF SEQ ID NOS: 413  
 ; SOFTWARE: PatentIn version 3.0  
 ; SEQ ID NO 286  
 ; LENGTH: 73  
 ; TYPE: PRT  
 ; ORGANISM: Conus tulipa  
 US-10-765-926-286

Query Match 78.0%; Score 117; DB 16; Length 73;  
 Best Local Similarity 73.1%; Pred. No. 1.4e-06;  
 Matches 19; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCCRSNCXYTKRC 26  
 |||||  
 DB 46 CLSPGSSCSPTSYNCCRSNCNPYSRKC 71  
 |||||

RESULT 15  
 US-09-910-082A-137  
 ; Sequence 137, Application US/09910082A  
 ; Publication No. US20030119731A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: University of Utah Research Foundation  
 ; APPLICANT: Cognetix, Inc.  
 ; APPLICANT: Olivera, Baldomero M.

APPLICANT: McIntosh, J. Michael  
APPLICANT: Watkins, Maren  
APPLICANT: Garrett, James E.  
APPLICANT: Shon, Ki-Joon  
APPLICANT: Jacobsen, Richard  
APPLICANT: Jones, Robert M.  
APPLICANT: Cartier, G. Edward  
TITLE OF INVENTION: Omega-Conopeptides  
FILE REFERENCE: 2314-241  
CURRENT APPLICATION NUMBER: US/09/910,082A  
CURRENT FILING DATE: 2001-07-23  
PRIOR APPLICATION NUMBER: US 60/219,616  
PRIOR FILING DATE: 2000-07-21  
PRIOR APPLICATION NUMBER: US 60/265,888  
PRIOR FILING DATE: 2001-02-05  
NUMBER OF SEQ ID NOS: 413  
SOFTWARE: PatentIn version 3.0  
SEQ ID NO 137  
LENGTH: 27  
TYPE: PRT  
ORGANISM: Conus geographus  
FEATURE:  
NAME/KEY: PEPTIDE  
LOCATION: (1)..(27)  
OTHER INFORMATION: Xaa at residue 4, 10 and 21 is Pro or Hyp; Xaa at residue 13, 22  
OTHER INFORMATION: and 27 is Tyr, 1251-Tyr, mono-iodo-Tyr, di-iodo-Tyr, O-sulpho-Tyr  
OTHER INFORMATION: or O-phospho-Tyr  
US-09-910-082A-137

Query Match 77.3%; Score 116; DB 10; Length 27;  
Best Local Similarity 88.5%; Pred. No. 8.5e-07;  
Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

Qy 1 CKSXGSSCSXTSYNCCRSNCNXYTKRC 26  
| | | | | | | | | | | | | | | | | | | | | | | | | | |  
Db 1 CKSXGSSCSXTSYNCCRSNCNXYTKRC 26

Search completed: March 23, 2005, 00:35:02  
Job time : 62.6457 secs

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:16:20 ; Search time 15.1485 Seconds  
(without alignments)  
171.492 Million cell updates/sec

Title: US-09-787-082A-12  
Perfect score: 150  
Sequence: 1 CKXGSSCSYXNCRSCNXYTKRCY 27

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues

Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : PIR 79:\*\*\*  
1: pir1:\*\*\*  
2: pir2:\*\*\*  
3: pir3:\*\*\*  
4: pir4:\*\*\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	141	94.0	73	1 NTKN6G	omega-conotoxin GV
2	76	50.7	29	2 B43620	omega-conotoxin GV
3	75	50.0	29	2 A43620	omega-conotoxin GV
4	73.5	49.0	25	2 JH0701	omega-conotoxin MV
5	69.5	46.3	29	2 A58537	omega-conotoxin SV
6	65	43.3	26	2 S44379	metallothionein 3
7	58	38.7	68	2 S44391	metallothionein II
8	57.5	38.3	24	2 B44379	metallothionein SV
9	57.5	38.3	25	2 JH0700	omega-conotoxin MV
10	57.5	38.3	29	2 JH0699	omega-conotoxin MV
11	57	38.0	68	2 B46034	metallothionein 3
12	57	38.0	68	2 S44392	metallothionein 3
13	57	38.0	68	2 JC6521	metallothionein II
14	57	38.0	455	2 T12041	cysteine proteinase
15	56.5	37.7	44	2 S38275	toxin PLTX-II - ap
16	56	37.3	317	2 A33985	wound-inducible ch
17	55	36.7	66	2 S58086	metallothionein 3
18	55	36.7	68	2 I67866	growth inhibitory
19	55	36.7	68	2 A46034	metallothionein 3
20	54.5	36.3	27	2 S55030	CAPS protein - ant
21	52.5	35.0	1224	2 T00059	hypothetical prote
22	52	34.7	394	2 A97244	moaA/NirJ family F
23	52	34.7	1205	2 T19517	procollagen N-endo
24	51	34.0	60	2 S31723	metallothionein -
25	51	34.0	76	2 D44007	aptotoxin IV - tra
26	51	34.0	76	2 D44007	aptotoxin VI - tra
27	51	34.0	248	2 T31841	hypothetical prote
28	51	34.0	301	2 T01499	NADPH HC toxin red
29	50.5	33.7	178	2 T29345	hypothetical prote

30	50.5	33.7	228	2 T31634	hypothetical prote
31	50.5	33.7	385	1 OMTSP	selenoprotein P pr
32	50.5	33.7	1328	2 T43060	agrin - electric r
33	50.5	33.7	2946	2 T15840	hypothetical prote
34	50	33.3	27	2 S19619	delta-conotoxin Tx
35	50	33.3	29	2 A55891	delta-conotoxin Gm
36	50	33.3	58	2 S43367	metallothionein -
37	50	33.3	60	2 B27490	metallothionein B
38	50	33.3	74	2 S38335	metallothionein -
39	50	33.3	74	2 F44007	aptotoxin I - trap
40	50	33.3	76	2 A44007	aptotoxin IX - tra
41	50	33.3	78	2 S12513	delta-conotoxin Tx
42	50	33.3	169	1 S18946	ultra high-sulfur
43	50	33.3	191	2 I46412	keratin KAP5.4 - s
44	50	33.3	601	2 G96558	probable protein k
45	49.5	33.0	73	2 T28183	hypothetical prote

ALIGNMENTS

RESULT 1

NTKN6G

omega-conotoxin GVIB precursor [validated] - cone shell (Conus geographus)  
N:Alternate names: shaker peptide GVIB  
N:Contains: omega-conotoxin GVIA; omega-conotoxin GVIC  
C:Species: Conus geographus (geography cone)  
C:Date: 25-Feb-1985 #sequence revision 23-Mar-1995 #text\_change 09-Jul-2004  
C:Accession: A44006; A60133; B60133; A01785  
R:Colledge, C.J.; Hunsperger, J.P.; Imperial, J.S.; Hillyard, D.R.  
Toxinon 30, 1111-1116, 1992  
A:Title: Precursor structure of omega-conotoxin GVIA determined from a cDNA clone.  
A:Reference number: A44006; MUID:93069266; PMID:1440648  
A:Accession: A44006  
A:Molecule type: mRNA  
A:Residues: 1-73 <COL>  
A:Cross-references: UNIPROT:P01522; GB:M84612; NID:gl56520; PIDN:AAA81590.1; PID:gi070393;  
A:Experimental source: venom duct  
A:Note: sequence extracted from NCBI backbone (NCBIN:119531, NCBIP:119532)  
R:Olivera, B.M.; Gray, W.R.; Zeikus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Santos  
Science 230, 1338-1343, 1985  
A:Title: Peptide neurotoxins from fish-hunting cone snails.  
A:Reference number: A43620; MUID:86070213; PMID:4071055  
A:Accession: A60133

A:Reference number: A51089; PDB:1CCO  
 A:Contents: annotation; conformation by (1)H-NMR, residues 46-72  
 C:Comment: There are several types of conotoxins: alpha, acting on postsynaptic membrane neurotoxin.

C:Superfamily: omega-conotoxin  
 C:Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inhibitor  
 F:1-22/Domain: signal sequence #status predicted <SIG>  
 F:23-45/Domain: propeptide #status predicted <PRO>  
 F:46-73/Product: omega-conotoxin GVIA #status experimental <MAT1>  
 F:46-72/Product: omega-conotoxin GVIA #status experimental <MAT2>  
 F:46-71/Product: omega-conotoxin GVIA #status experimental <MAT3>  
 F:46-61,53-64,60-71/Disulfide bonds: #status experimental  
 F:49,55,66/Modified site: 4-hydroxyproline (Pro) #status experimental  
 F:72/Modified site: amidated carboxyl end (Tyr) (amide in mature form from following gly

Query Match 94.0%; Score 141; DB 1; Length 73;  
 Best Local Similarity 88.9%; Pred. No. 1.4e-09;  
 Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCRSCNXYTKRCY 27  
 DB 46 CKSPGTPCSRGMWDCTCLSYNKC 72

RESULT 2  
 B43620  
 omega-conotoxin GVIIA - cone shell (Conus geographus)  
 N:Alternate names: shaker peptide GVIIA  
 C:Species: Conus geographus (geography cone)  
 C:Date: 11-Dec-1992 #sequence\_revision 11-Dec-1992 #text\_change 09-Jul-2004  
 C:Accession: B43620

R:Oliviera, B.M.; Gray, W.R.; Zeikus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Santis  
 Science 230, 1338-1343, 1985  
 A:Title: Peptide neurotoxins from fish-hunting cone snails.  
 A:Reference number: A43620; MUID:86070213; PMID:4071055

A:Accession: B43620  
 A:Molecule type: protein  
 A:Residues: 1-29 <OLI>  
 A:CROSS-references: UNIPROT:P05483  
 C:Superfamily: omega-conotoxin  
 C:Keywords: acetylcholine release inhibition; calcium channel inhibitor; hydroxyproline;  
 F:1-16,8-19,15-26/Disulfide bonds: #status predicted  
 F:4,7/Modified site: 4-hydroxyproline (Pro) #status experimental

Query Match 50.7%; Score 76; DB 2; Length 29;  
 Best Local Similarity 46.2%; Pred. No. 0.017;  
 Matches 12; Conservative 4; Mismatches 10; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCRSCNXYTKRC 26  
 DB 1 CKSPGTPCSRGMWDCTCLSYNKC 26

RESULT 3  
 A43620  
 omega-conotoxin GVIIA - cone shell (Conus geographus)  
 N:Alternate names: shaker peptide GVIIA  
 C:Species: Conus geographus (geography cone)  
 C:Date: 11-Dec-1992 #sequence\_revision 11-Dec-1992 #text\_change 09-Jul-2004  
 C:Accession: A43620

R:Oliviera, B.M.; Gray, W.R.; Zeikus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Santis  
 Science 230, 1338-1343, 1985  
 A:Title: Peptide neurotoxins from fish-hunting cone snails.  
 A:Reference number: A43620; MUID:86070213; PMID:4071055

A:Accession: A43620  
 A:Molecule type: protein  
 A:Residues: 1-29 <OLI>  
 A:CROSS-references: UNIPROT:P05483  
 C:Superfamily: omega-conotoxin  
 C:Keywords: acetylcholine release inhibition; calcium channel inhibitor; hydroxyproline;  
 F:1-16,8-19,15-26/Disulfide bonds: #status predicted  
 F:4,7/Modified site: 4-hydroxyproline (Pro) #status experimental

Query Match 50.0%; Score 75; DB 2; Length 29;  
 Best Local Similarity 46.2%; Pred. No. 0.022;  
 Matches 12; Conservative 4; Mismatches 10; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCRSCNXYTKRC 26  
 DB 1 CKSPGTPCSRGMWDCTCLSYNKC 26

RESULT 4  
 JH0701  
 omega-conotoxin MVIIB - cone shell (Conus magus)  
 C:Species: Conus magus (magus cone)  
 C:Date: 17-Apr-1993 #sequence\_revision 17-Apr-1993 #text\_change 09-Jul-2004  
 C:Accession: JH0701; B34115  
 R:Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadasdi, L.; Ramachandran, J.; M  
 Neuron 9, 69-77, 1992  
 A:Title: A new conus peptide ligand for mammalian presynaptic Ca2+ channels.  
 A:Reference number: JH0699; MUID:92337922; PMID:1352986

A:Accession: JH0701  
 A:Status: nucleic acid sequence not shown  
 A:Molecule type: mRNA  
 A:Residues: 1-25 <HIL>  
 A:CROSS-references: UNIPROT:P05485  
 R:Oliviera, B.M.; Cruz, L.J.; de Santos, V.; LeCheminant, G.W.; Griffin, D.; Zeikus, R.; M  
 Biochemistry 26, 2086-2090, 1987  
 A:Title: Neuronal calcium channel antagonists. Discrimination between calcium channel su  
 A:Reference number: A34115; MUID:87299637; PMID:2441741

A:Accession: B34115  
 A:Molecule type: protein  
 A:Residues: 1-25 <OLI>  
 C:Superfamily: omega-conotoxin  
 C:Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh  
 F:1-16,8-20,15-25/Disulfide bonds: #status predicted  
 F:25/Modified site: amidated carboxyl end (Cys) #status predicted

Query Match 49.0%; Score 73.5; DB 2; Length 25;  
 Best Local Similarity 61.9%; Pred. No. 0.03;  
 Matches 13; Conservative 2; Mismatches 5; Indels 1; Gaps 1;

QY 1 CKSXGSSCSXTSYNCCR-SCN 20  
 DB 1 CKGKGASCHRTSYDCCTGSCN 21

RESULT 5  
 A58537  
 omega-conotoxin MVIID precursor - cone shell (Conus magus) (fragment)  
 C:Species: Conus magus (magus cone)  
 C:Date: 27-Mar-1997 #sequence\_revision 11-Apr-1997 #text\_change 09-Jul-2004  
 C:Accession: A58537  
 R:Monje, V.D.; Haack, J.A.; Naibitt, S.R.; Miljanich, G.; Ramachandran, J.; Nadasdi, L.  
 Neuropharmacology 32, 1141-1149, 1993  
 A:Title: A new Conus peptide ligand for Ca channel subtypes.  
 A:Reference number: A58537; MUID:94150815; PMID:8107968

A:Accession: A58537  
 A:Molecule type: mRNA  
 A:Residues: 1-29 <NON>  
 A:CROSS-references: UNIPROT:Q26350; GB:S69322; NID:G545399; PIDN:AAB29902.1; PID:G545400  
 A:Note: the predicted peptide was chemically synthesized and alternative disulfide bonds  
 C:Superfamily: omega-conotoxin  
 C:Keywords: toxin; venom  
 F:4-23/Product: omega-conotoxin MVIID #status predicted <MAT>  
 F:4-19,11-23,18-28/Disulfide bonds: #status predicted

Query Match 46.3%; Score 69.5; DB 2; Length 29;  
 Best Local Similarity 57.1%; Pred. No. 0.092;  
 Matches 12; Conservative 2; Mismatches 6; Indels 1; Gaps 1;

QY 1 CKSXGSSCSXTSYNCCR-SCN 20  
 DB 4 CQGRGASCRKTMVNCSCGSCN 24



C;Species: Conus striatus (striated cone)  
C;Date: 31-Dec-1993 #sequence\_revision 31-Dec-1993 #text\_change 09-Jul-2004  
C;Accession: B44379  
R;Ramilo, C.A.; Zafaralla, G.C.; Nadaadi, L.; Hammerland, L.G.; Yoshikami, D.; Gray, W.R.  
Biochemistry 31, 9919-9926, 1992  
A;Title: Novel alpha- and omega-conotoxins from Conus striatus venom.  
A;Reference number: A44379; MUID:139003172; PMID:1390774  
A;Accession: B44379  
A;Molecule type: protein  
A;Residues: 1-24 <RAM>  
A;Cross-references: UNIPROT:Q9N604; UNIPROT:Q9NCU3; UNIPROT:Q9NCU4; UNIPROT:Q9NCU2; UNIPROT:Q9NCU1  
A;Experimental source: venom  
A;Note: sequence extracted from NCBI backbone (NCBIP:116001); structure confirmed by chemo-sequencing.  
C;Comment: This omega-conotoxin blocks presynaptic calcium channels.  
C;Superfamily: omega-conotoxin  
C;Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inhibitor  
F;1-15, 18-24/Disulfide bonds: #status predicted  
F;24/Modified site: amidated carboxyl end (Thr) #status experimental

Query Match 38.3%; Score 57.5; DB 2; Length 24;  
Best Local Similarity 46.2%; Pred. No. 1.9;  
Matches 12; Conservative 2; Mismatches 9; Indels 3; Gaps 2;

QY 1 CKSGSSCSXSYNSCRSCKNYTKRC 26  
|:||||||| | | | | | :|  
DB 1 CRSGSPCGVTSI--CCGR--YRGKC 23  
|:||||||| | | | | | :|

RESULT 9  
JH0700  
omega-conotoxin MVIIA [validated] - cone shell (Conus magus)  
C;Species: Conus magus (magus cone)  
C;Date: 17-Apr-1993 #sequence\_revision 17-Apr-1993 #text\_change 09-Jul-2004  
C;Accession: JH0700; C60133; A34115  
R;Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadaadi, L.; Ramachandran, J.; Mi Neuron 9, 69-77, 1992  
A;Title: A new conus peptide ligand for mammalian presynaptic Ca2+ channels.  
A;Reference number: JH0699; MUID:92337922; PMID:1352986  
A;Accession: JH0700  
A;Status: nucleic acid sequence not shown  
A;Molecule type: mRNA  
A;Residues: 1-25 <HL>  
A;Cross-references: UNIPROT:P05484  
R;Olivera, B.M.; Gray, W.R.; Zeikus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Santos Science 230, 1338-1343, 1985  
Biochemistry 26, 2086-2090, 1987  
A;Title: Peptide neurotoxins from fish-hunting cone snails.  
A;Reference number: A43620; MUID:86070213; PMID:4071055  
A;Accession: C60133  
A;Molecule type: protein  
A;Residues: 1-25 <OLIV>  
R;Olivera, B.M.; Cruz, L.J.; de Santos, V.; LeCheminant, G.W.; Griffin, D.; Zeikus, R.; de Santos Biochemistry 26, 2086-2090, 1987  
A;Title: Neuronal calcium channel antagonists. Discrimination between calcium channel subtypes.  
A;Reference number: A34115; MUID:87299637; PMID:2441741  
A;Accession: C60133  
A;Contents: annotation  
R;Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.  
submitted to the Brookhaven Protein Data Bank, August 1996  
A;Reference number: A67648; PDB:1MWI  
A;Contents: annotation; conformation by (1)H-NMR, residues 1-25  
R;Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.  
J. Mol. Biol. 263, 297-310, 1996  
A;Title: A consensus structure for omega-conotoxins with different selectivities for voltage-gated calcium channels.  
A;Reference number: A58619; MUID:97070382; PMID:8913308  
A;Accession: C60133  
A;Contents: annotation; conformation by (1)H-NMR  
R;Kobayashi, K.; Kodera, Y.; Maeda, T.; Sato, K.  
submitted to the Brookhaven Protein Data Bank, April 1995  
A;Reference number: A66296; PDB:1OMG  
A;Contents: annotation; conformation by (1)H-NMR, residues 1-25  
R;Kobayashi, K.; Kodera, Y.; Maeda, T.; Sato, K.  
Biochemistry 34, 10256-10265, 1995  
A;Title: Three-dimensional structure in solution of the calcium channel blocker omega-conotoxin MVIIA.  
A;Reference number: A58627; MUID:95367555; PMID:7640281  
A;Accession: C60133  
A;Contents: annotation; conformation by (1)H-NMR

C;Superfamily: omega-conotoxin  
C;Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh  
P;1-16,8-20,15-25/Disulfide bonds: #status predicted  
F;25/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 38.3%; Score 57.5; DB 2; Length 25;  
Best Local Similarity 50.0%; Pred. No. 1.9;  
Matches 10; Conservative 2; Mismatches 7; Indels 1; Gaps 1;

Qy 1 CKSXGSSCSXTSYNCCR-SC 19  
||| : ||| : |||  
Db 1 CKKGAKCSRLMYDCCGTGSC 20

## RESULT 10

JH0599  
 omega-conotoxin MVIIIC precursor [validated] - cone shell (Conus magus) (fragment)  
 C/Species: Conus magus (magus cone)  
 C/Date: 17-Apr-1993 #sequence\_revision 11-Apr-1997 #text\_change 09-Jul-2004  
 C/Accession: JH0699; PC2380  
 R/Hillaryd, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadaesi, L.; Ramachandran, J.; M  
 Neuron 9, 69-77, 1992  
 A/Title: A new Conus peptide ligand for mammalian presynaptic Ca2+ channels.  
 A/Reference number: JH0699; MUID:92337922; PMID:1352986  
 A/Accession: JH0699  
 A/Molecule type: mRNA  
 A/Residues: 1-29 <H1>  
 A/Cross-references: UNIPROT:P37300; GB:S40826; NID:G252126; PIDN:AA82674.1; PID:G252127  
 R/Nemoto, N.; Kubo, S.; Yoshida, T.; Chino, N.; Klmura, T.; Sakakibara, S.; Kyogoku, Y.;  
 Biochem. Biophys. Res. Commun. 207, 695-700, 1995  
 A/Title: Solution structure of omega-conotoxin MVIIIC determined by NMR.  
 A/Reference number: PC2380; MUID:95169113; PMID:7864862  
 A/Accession: PC2380

Query Match 38.3%; Score 57.5; DB 2; Length 29;  
Best Local Similarity 50.0%; Pred. No. 2.1;  
Matches 10: Conservative 2; Mismatches 7; Indels 1; Gaps 1;

Qy 1 CKXGSSCSXTSYNCR-SC 19  
||:| | | | |  
nb 3 CKKGAPCRKTMVDCSGSC 22

## RESULT 11

Accession: 11  
B46034  
metallothionein 3, brain-specific - human  
N;Alternate names: growth inhibitory factor; metallothionein MT-III  
C;Species: Homo sapiens (man)  
C;Date: 21-Sep-1993 #sequence revision 18-Nov-1994 #text\_change 09-Jul-2004  
C;Accession: B46034; S28393; JH0463; S58084; I53803  
R;Palmiter, R.D.; Findley, S.D.; Whitmore, T.E.; Durnam, D.M.  
Proc. Natl. Acad. Sci. U.S.A. 89, 6333-6337, 1992  
A;Title: MT-III, a brain-specific member of the metallothionein gene family.  
A;Reference number: A46034; MUID:92335292; PMID:1631128  
A;Accession: B46034  
A;Molecule type: DNA  
A;Residues: 1-68 <PAL>

A; Cross-references: UNIPROT:P25713; GB:M93311; NID:g187546; PIDN:AAA36214.1; PID:g187547  
A; Note: sequence extracted from NCBI backbone (NCBIN:108717, NCBIN:111117, NCBI:P:108718)  
R; Tauji, S.; Kobayashi, H.; Uchida, Y.; Ihara, Y.; Miyatake, T.  
EMBO J. 11, 4843-4850, 1992  
A; Title: Molecular cloning of human growth inhibitory factor cDNA and its down-regulation  
A; Reference number: S28393; MUID:9309858; PMID:1464312

Query Match 38.0%; Score 57; DB 2; Length 68;  
Best Local Similarity 30.8%; Pred. No. 4.1;  
Matches 8; Conservative 4; Mismatches 14; Indels 0; Gaps 0;

Qy 1 CKSXGSSCSXTSYNCCRSNCXYTKRC 26  
|| | | : || | : :  
pb 20 CKCEGCKCTCKKSCSCCSPAECEK 45

RESULT 12

S44392 metallothionein 3 - horse  
N;Alternate names: neuronal growth inhibitory factor  
C;Species: Equus caballus (domestic horse)  
C;Date: 19-Mar-1997 #sequence\_revision 19-Mar-1997 #text\_change 09-Jul-2004  
C;Accession: S44392  
R;Pountrney, D.L.; Fundel, S.M.; Fallier, P.; Birchler, N.E.; Hunziker, P.; Vasak, M.  
FEBS Lett. 345, 193-197, 1994  
A;Title: Isolation, primary structures and metal binding properties of neuronal growth i  
A;Reference number: S44391; MUID:94259179; PMID:8200454  
A;Accession: S44392  
A;Status: preliminary  
A;Molecule type: protein  
A;Residues: 1-68 <POU>  
A;Cross-references: UNIPROT:P37360  
C;Superfamily: metallothionein

Query Match 38.0%; Score 57; DB 2; Length 68;  
Best Local Similarity 30.8%; Pred. No. 4.1;  
Matches 8; Conservative 4; Mismatches 14; Indels 0; Gaps 0

QY 1 CKXGSSCSXSYNCCRSNXYTKRC 26  
||| | :||| :||  
DB 20 CKCEGCKTCKKSCGCCPAECEKC 45

## RESULT 13

JC6521  
Metallothionein III - pig  
N:Alternate names: neuron growth inhibitory factor  
C:Species: Sus scrofa domestica (domestic pig)  
C:Date: 21-Aug-1998 #sequence\_revision 21-Aug-1998 #text\_change 09-Jul-2004  
C:Accession: JC6521  
R:Wang, S.H.; Chang, C.Y.; Chen, C.F.; Tam, M.F.; Shih, Y.H.; Lin, L.Y.  
Gene 203, 189-197, 1997  
A:Title: Cloning of porcine neuron growth inhibitory factor (metallothionein III) cDNA  
A:Reference number: JC6521; MUID:98086219; PMID:9426250  
A:Accession: JC6521  
A:Molecule type: mRNA  
A:Residues: 1-68 <WAN>  
A:CROSS-references: UNIPROT:P5944; NID:G2073001; PIDN:AAC39165.1; PID:G20730  
A:Experimental source: brain  
C:Comment: This protein is a growth inhibitory factor, and it can be induced by metals,  
C:Genetics:  
A:Gene: mtIII  
C:Superfamily: metallothionein  
C:Keywords: brain; metal binding

Query Match 38.0%; Score 57; DB 2; Length 68;  
Best Local Similarity 30.8%; Pred. No. 4.1;  
Matches 8; Conservative 4; Mismatches 14; Indels 0; Gaps 0;

QY 1 CKXGSSCSXSYNCCRSNXYTKRC 26  
||| | :||| :||  
DB 20 CKCEGCKTCKKSCGCCPAECEKC 45

## RESULT 14

Tl2041  
cysteine proteinase (EC 3.4.22.-) 3 precursor - kidney bean  
C:Species: Phaseolus vulgaris (kidney bean)  
C:Date: 16-Jul-1999 #sequence\_revision 16-Jul-1999 #text\_change 09-Jul-2004  
C:Accession: Tl2041  
R:Senyuk, V.; Becker, C.; Muentz, K.  
submitted to the EMBL Data Library, October 1997  
A:Description: Isolation of cDNA clone encoding cysteine proteinase (CP3) from a cotyledon  
A:Reference number: Z17387  
A:Accession: Tl2041  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: DNA  
A:Residues: 1-455 <SEN>  
A:CROSS-references: UNIPROT:O24323; EMBL:Z99954  
A:Experimental source: cultivar Moldavian; cotyledon; clone cp71  
C:Superfamily: papain  
C:Keywords: cysteine proteinase; hydrolase  
F:1-13/Domain: signal sequence #status predicted <SIG>  
F:14-126/Domain: propeptide #status predicted <PRO>  
F:127-455/Product: cysteine proteinase 3 #status predicted <MAT>  
F:151,287,307/Active site: Cys, His, Asn #status predicted

Query Match 38.0%; Score 57; DB 2; Length 455;  
Best Local Similarity 33.3%; Pred. No. 13;  
Matches 10; Conservative 3; Mismatches 13; Indels 4; Gaps 1;

QY 1 CKXGSSCSXSYNCCRSNXYTKRC 26  
||| | :||| :||  
DB 394 CPLEGATCCDHYSCCPHDYPCNTYAGTC 423

## RESULT 15

S38275  
toxin PLTX-II - spider (Plectreureys tristis)  
C:Species: Plectreureys tristis

C:Date: 10-Mar-1994 #sequence\_revision 10-Mar-1994 #text\_change 09-Jul-2004  
C:Accession: S38275  
R:Branton, W.D.; Rudnick, M.S.; Zhou, Y.; Eccleston, E.D.; Fields, G.B.; Bowers, L.D.  
Nature 365, 496-497, 1993  
A:Title: Fatty acylated toxin structure.  
A:Reference number: S38275; MUID:94019787; PMID:8413602  
A:Accession: S38275  
A:Molecule type: protein  
A:Residues: 1-44 <BRA>  
A:CROSS-references: UNIPROT:P34079  
C:Superfamily: curatatoxin  
C:Keywords: amidated carboxyl end; lipoprotein  
F:44/Binding site: fatty acid (Thr) (covalent) #status experimental  
F:44/Modified site: amidated carboxyl end (Thr) #status experimental

Query Match 37.7%; Score 56.5; DB 2; Length 44;  
Best Local Similarity 42.3%; Pred. No. 3.5;  
Matches 11; Conservative 2; Mismatches 10; Indels 3; Gaps 2;

QY 1 CKXGSSCSXSYNCCRSNXYTKRC 26  
||| | :||| :||  
DB 3 CSATGDTCDHTK-KCDDDC--YTCRC 25

Search completed: March 22, 2005, 22:54:17  
Job time : 15.1485 secs

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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:45:36 ; Search time 72.0891 Seconds  
(without alignments)  
191.792 Million cell updates/sec

Title: US-09-787-082A-12  
Perfect score: 150  
Sequence: 1 CKSXGSSCSXTSYNCCRCNCNXXTKRCY 27

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : UniProt 03.\*

1: uniprot\_prot.\*

2: uniprot\_trembl.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	141	94.0	73	1	CKX06 CONGE
2	117	78.0	26	1	CKX06_CONTO
3	98	65.3	27	1	CKX06_CONRA
4	78	52.0	115	1	CVF5 PIMHY
5	75	50.0	29	1	CKX07 CONGE
6	74.5	49.7	66	2	Q9N625
7	74.5	49.7	66	2	Q9N628
8	74.5	49.7	66	2	Q9NCW2
9	74.5	49.7	71	1	CKX0A_CONCT
10	73.5	49.0	25	1	CKX0B_CONMA
11	73.5	49.0	66	2	Q9NCV6
12	71.5	47.7	73	1	CKX0D_CONCT
13	70.5	47.0	25	1	CKX0B_CONCT
14	69.5	46.3	29	1	CKX0D_CONMA
15	69.5	46.3	66	2	Q9N633
16	69.5	46.3	66	2	Q9N6F8
17	69.5	46.3	66	2	Q9N6N6
18	69.5	46.3	66	2	Q9NCU1
19	69.5	46.3	66	2	Q9NCV0
20	69.5	46.3	66	2	Q9NCV4
21	69.5	46.3	66	2	Q9NCV9
22	69.5	46.3	66	2	Q9NCW0
23	69.5	46.3	66	2	Q9NCW1
24	69.5	46.3	66	2	Q9NCW3
25	69.5	46.3	66	2	Q9NCW5
26	69.5	46.3	66	2	Q9NCW6
27	68.5	45.7	66	2	Q9NCW4
28	65.5	43.7	66	2	Q9N6F7
29	65.5	43.7	66	2	Q9NCV5
30	65.5	43.7	66	2	Q9NCV7
31	65	43.3	72	1	CKX0B_CONST

32	64.5	43.0	27	1	CKX07_CONCN	P58916	conus	conso
33	64.5	43.0	66	2	Q9NCV1	Q9ncv1	conus	stria
34	64.5	43.0	66	2	Q9NCV2	Q9ncv2	conus	stria
35	64.5	43.0	66	2	Q9NCV3	Q9ncv3	conus	stria
36	64.5	43.0	71	1	CKX03_CONST	Q9nxk2	conus	stria
37	63	42.0	72	2	Q9NCU8	Q9ncu8	conus	stria
38	63	42.0	72	2	Q9NCU9	Q9ncu9	conus	stria
39	63	42.0	77	1	CKX05_CONST	Q9xk4	conus	stria
40	61.5	41.0	26	1	CKX0C_CONCT	P58919	conus	catus
41	61	40.7	71	2	Q9TVX4	Q9tvx4	conus	abbe
42	61	40.7	71	2	Q9UA87	Q9ua87	conus	abbe
43	61	40.7	71	2	Q9UA88	Q9ua88	conus	abbe
44	61	40.7	71	2	Q9UA90	Q9ua90	conus	abbe
45	61	40.7	74	2	Q9TVR4	Q9tvr4	conus	abbe

ALIGNMENTS

RESULT 1  
CKX06\_CONGE  
ID CKX06 CONGE STANDARD; PRT; 73 AA.  
AC P01522;  
DT 21-JUL-1986 (Rel. 01, Created)  
DT 01-FEB-1994 (Rel. 28, Last sequence update)  
DT 25-OCT-2004 (Rel. 45, Last annotation update)  
DE Omega-conotoxin GVIA precursor (Shaker peptide) (SNX-124) [Contains:  
DE Omega-conotoxin GVIB; Omega-conotoxin GVIC].  
OS Conus geographus (Geography cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbecoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=6491;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE=93069266; PubMed=1440648; DOI=10.1016/0041-0101(92)90056-B;  
RA Colledge C.J., Hunsperger J.P., Imperial J.S., Hillyard D.R.;  
RT "Precursor structure of omega-conotoxin GVIA determined from a cDNA  
RT clone.";  
RL Toxicon 30:1111-1116 (1992).  
RN [2]  
RP SEQUENCE OF 46-72 (GVIA).  
RX MEDLINE=85072796; PubMed=6509012;  
RA Olivera B.M., McIntosh J.M., Cruz L.J., Luque F.A., Gray W.R.;  
RT "Purification and sequence of a presynaptic peptide toxin from Conus  
RT geographus venom.";  
RL Biochemistry 23:5087-5090 (1984).  
RN [3]  
RP SEQUENCE OF 46-73 (GVIB AND GVIC).  
RX MEDLINE=86070213; PubMed=4071055;  
RA Olivera B.M., Gray W.R., Zeikus R.D., McIntosh J.M., Varga J.,  
Rivier J.E., de Santos V., Cruz L.J.;  
RT "Peptide neurotoxins from fish-hunting cone snails.";  
RL Science 230:1338-1343 (1985).  
RN [4]  
RP SYNTHESIS OF GVIA, AND DISULFIDE BONDS.  
RX MEDLINE=87049928; PubMed=3779030;  
RA Nishiiuchi Y., Kumagaye K., Noda Y., Watanabe T.X., Sakakibara S.;  
RT "Synthesis and secondary-structure determination of omega-conotoxin  
RT GVIA: a 27-peptide with three intramolecular disulfide bonds.";  
RL Biopolymers 25:S61-S68 (1986).  
RN [5]  
RP MUTAGENESIS OF LYS-47; ARG-62; LYS-69 AND ARG-70.  
RX MEDLINE=93355683; PubMed=8394704;  
RA Sato K., Park N.G., Kohno T., Maeda T., Kim J.I., Kato R.,  
RA Takahashi M.;  
RT "Role of basic residues for the binding of omega-conotoxin GVIA to N-  
RT type calcium channels.";  
RL Biochem. Biophys. Res. Commun. 194:1292-1296 (1993).  
RN [6]  
RP MUTAGENESIS OF TYR-58.  
RX MEDLINE=95014108; PubMed=7929033;  
RA Kim J.I., Takahashi M., Ogura A., Kohno T., Kudo Y., Sato K.;

"Hydroxyl group of Tyr13 is essential for the activity of omega-conotoxin GVIA, a peptide toxin for N-type calcium channel.";  
 J. Biol. Chem. 269:23876-23878(1994).  
 [7]  
 SYNTHESIS, MUTAGENESIS OF LYS-47; TYR-58; ARG-62; TYR-67 AND LYS-69, RP AND STRUCTURE BY NMR.  
 RP MEDLINE=97277345; PubMed=9115267; DOI=10.1074/jbc.272.18.12014;  
 RA Lew M.J., Flinn J.P., Pallaghy P.K., Murphy R., Whorlow S.L.,  
 RA Wright C.E., Norton R.S., Angus J.A.;  
 RT "Structure-function relationships of omega-conotoxin GVIA. Synthesis, structure, calcium channel binding, and functional assay of alanine-substituted analogues.";  
 RT J. Biol. Chem. 272:12014-12023(1997).  
 [8]  
 RP STRUCTURE BY NMR OF GVIA.  
 RP MEDLINE=93282829; PubMed=8343203;  
 RA Sevilla P., Bruix M., Santoro J., Gago F., Garcia A.G., Rico M.;  
 RT "Three-dimensional structure of omega-conotoxin GVIA determined by 1H NMR.";  
 RT Biochem. Biophys. Res. Commun. 192:1238-1244(1993).  
 [9]  
 RP STRUCTURE BY NMR OF GVIA.  
 RP MEDLINE=93332945; PubMed=8338837;  
 RA Davis J.H., Bradley E.K., Miljanich G.P., Nadasdi L., Ramachandran J.,  
 RA Basus V.J.;  
 RT "Solution structure of omega-conotoxin GVIA using 2-D NMR spectroscopy and relaxation matrix analysis.";  
 RT Biochemistry 32:7396-7405(1993).  
 [10]  
 RP STRUCTURE BY NMR OF GVIA.  
 RP MEDLINE=94047089; PubMed=8230223;  
 RA Pallaghy P.K., Duggan B.M., Pennington M.W., Norton R.S.;  
 RT "Three-dimensional structure in solution of the calcium channel blocker omega-conotoxin.";  
 RT J. Mol. Biol. 234:405-420(1993).  
 [11]  
 RP STRUCTURE BY NMR OF GVIA.  
 RP MEDLINE=94073074; PubMed=8251934;  
 RA Skalicky J.J., Metzler W.J., Clesla D.J., Galdea A., Pardi A.;  
 RT "Solution structure of the calcium channel antagonist omega-conotoxin GVIA.";  
 RT Protein Sci. 2:1591-1603(1993).  
 [12]  
 RP STRUCTURE BY NMR OF GVIA.  
 RP MEDLINE=92248506; PubMed=10231724;  
 RA Pallaghy P.K., Norton R.S.;  
 RT "Refined solution structure of omega-conotoxin GVIA: implications for calcium channel binding.";  
 RT J. Pept. Res. 53:343-351(1999).  
 [13]  
 RP REVIEW.  
 RP MEDLINE=20283152; PubMed=10822250;  
 RX DOI=10.1002/(SICI)1099-1352(200003/04)13:2<55::AID-JMR489>3.0.CO;2-O;  
 RA Nielsen K.J., Schroeder T., Lewis R.;  
 RT "Structure-activity relationships of omega-conotoxins at N-type voltage-sensitive calcium channels.";  
 RL J. Mol. Recognit. 13:55-70(2000).  
 CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind and block voltage-sensitive calcium channels (VSCC).  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type family.  
 -----  
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 -----  
 EMBL; M84612; AAA81590.1; -.

PIR; A44006; NTKN6G.  
 PDB; 1OMC; NMR; @=46-73.  
 PDB; 2CCO; NMR; @=46-73.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 KW 3D-structure; Amidation; Calcium channel inhibitor;  
 KW Direct protein sequencing; Hydroxylation; Ionic channel inhibitor;  
 KW Neurotoxin; Presynaptic neurotoxin; Signal; Toxin.  
 FT SIGNAL 1 22 Potential.  
 FT PROPEP 23 45  
 FT PEPTIDE 46 73 Omega-conotoxin GVIB.  
 FT PEPTIDE 46 72 Omega-conotoxin GVIA.  
 FT MOD\_RES 49 49 4-hydroxyproline.  
 FT MOD\_RES 55 55 4-hydroxyproline.  
 FT MOD\_RES 66 66 4-hydroxyproline.  
 FT MOD\_RES 72 72 Tyrosine amide (G-73 provides amide group) (in omega-conotoxin GVIA).  
 FT DISULFID 46 61  
 FT DISULFID 53 64  
 FT DISULFID 60 71  
 FT MUTAGEN 47 47 K->A: Strong decrease in activity.  
 FT MUTAGEN 58 58 Y->A: Strong decrease in activity.  
 FT MUTAGEN 58 58 Y->F: Decrease in affinity.  
 FT MUTAGEN 62 62 R->A: Decrease in potency, but not in affinity.  
 FT MUTAGEN 67 67 Y->A: Decrease in potency, but not in affinity.  
 FT MUTAGEN 69 69 K->A: Decrease in potency, but not in affinity.  
 FT MUTAGEN 70 70 R->A: No change in activity.  
 FT STRAND 47 47  
 FT TURN 49 50  
 FT STRAND 52 52  
 FT TURN 55 58  
 FT STRAND 60 65  
 FT TURN 66 69  
 FT STRAND 70 71  
 SQ SEQUENCE 73 AA; 7851 MW; 51A8C8FA630F7175 CRC64;  
 Query Match 94.0%; Score 141; DB 1; Length 73;  
 Best Local Similarity 88.9%; Pred. NO. 6e-10;  
 Matches 24; Conservative 0; Mismatches 3; Indels 0; Gaps 0;  
 QY 1 CKSVGSSCSXTSYNCCRSCTNYTKRCY 27  
 DB 46 CKSPGSSCSPTSYNCCRSCTNYTKRCY 72  
 RESULT 2  
 CXO6\_CONUTU STANDARD; PRT; 26 AA.  
 ID CXO6\_CONUTU  
 AC F58915;  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DE 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Omega-conotoxin TVIA (SNX-185).  
 OS Conus tulipa (Fish-hunting cone snail) (Tulip cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbecoconcha; Hypogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=6495;  
 RN [1]  
 RP SEQUENCE, SYNTHESIS, AND DISULFIDE BONDS.  
 RX MEDLINE=9612182; PubMed=8537186;  
 RA Chung D., Gaur S., Bell J.R., Ramachandran J., Nadasdi L.;  
 RT "Determination of disulfide bridge pattern in omega-conopeptides.";  
 RL Int. J. Pept. Protein Res. 46:320-325(1995).  
 RN [2]  
 RP SEQUENCE OF 1-16.  
 RA Miljanich G.P., Bitner R.S., Bowersox S.S., Fox J.A., Valentino K.L.,  
 RA Yamashiro D.H.;

"Method of treating ischemia-related neuronal damage.";  
 Patent number US051403, 24-SEP-1991.  
 [3]  
 REVIEW.  
 RX MEDLINE=95321729; PubMed=7598513;  
 RX DOI=10.1146/annurev.pa.35.040195.003423;  
 RA Miljanich G.P., Ramchandran J.;  
 RT "Antagonists of neuronal calcium channels: structure, function, and  
 therapeutic implications.";  
 RL Annu. Rev. Pharmacol. Toxicol. 35:707-734 (1995).  
 CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind  
 and block voltage-sensitive calcium channels (VSCC).  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type  
 family.  
 KW Calcium channel inhibitor; Direct protein sequencing; Hydroxylation;  
 KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Toxin.  
 FT DISULFID 1 16  
 FT DISULFID 8 19  
 FT DISULFID 15 26  
 FT MOD\_RES 4 4 Hydroxyproline.  
 FT MOD\_RES 10 10 Hydroxyproline.  
 FT MOD\_RES 21 21 Hydroxyproline.  
 SQ SEQUENCE 26 AA; 2804 MW; A70926F3871A7883 CRC64;  
 Query Match 78.0%; Score 117; DB 1; Length 26;  
 Best Local Similarity 73.1%; Pred. No. 1.9e-07;  
 Matches 19; Conservative 3; Mismatches 4; Indels 0; Gaps 0;  
 QY 1 CKSXGSSCSXTSYNCRSCNXYTKRC 26  
 DB 1 CLSPGSCSPTSYNCRSCNPSYRK 26  
 RESULT 3  
 CXO6\_CONRA STANDARD; PRT; 27 AA.  
 AC P58914;  
 DT 28-FEB-2003 (Rel. 41, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Omega-conotoxin RVIA.  
 OS Conus radiatus (rayed cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=61198;  
 RN [1]  
 RP SEQUENCE.  
 RA Miljanich G.P., Bitner R.S., Bowersox S.S., Fox J.A., Valentino K.L.,  
 RA Yamashiro D.H.;  
 RT "Method of treating ischemia-related neuronal damage.";  
 RL Patent number US051403, 24-SEP-1991.  
 CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind  
 and block voltage-sensitive calcium channels (VSCC).  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type  
 family.  
 KW Calcium channel inhibitor; Direct protein sequencing; Hydroxylation;  
 KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Toxin.  
 FT DISULFID 1 16  
 FT DISULFID 8 19  
 FT DISULFID 15 26  
 FT MOD\_RES 4 4 Hydroxyproline.  
 FT MOD\_RES 7 7 Hydroxyproline.  
 SQ SEQUENCE 27 AA; 2887 MW; F554C1F8A01A88AF CRC64;  
 Query Match 65.3%; Score 98; DB 1; Length 27;  
 Best Local Similarity 57.7%; Pred. No. 3.8e-05;  
 Matches 15; Conservative 2; Mismatches 9; Indels 0; Gaps 0;

QY 1 CKSXGSSCSXTSYNCRSCNXYTKRC 26  
 DB 1 CKPGSPCRVSSYNCCSSCKSYNKKC 26  
 RESULT 4  
 CVP5\_PIMHY STANDARD; PRT; 115 AA.  
 AC Q8TOW1;  
 DT 25-OCT-2004 (Rel. 45, Created)  
 DT 25-OCT-2004 (Rel. 45, Last sequence update)  
 DT 25-OCT-2004 (Rel. 45, Last annotation update)  
 DE Cysteine-rich venom protein 5 precursor.  
 GN Name=cvp5;  
 OS Pimpla hypochondriaca (Parasitoid wasp).  
 OC Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;  
 OC Neoptera; Endopterygota; Hymenoptera; Apocrita; Ichneumonidea;  
 OC Ichneumonidae; Pimplinae; Pimplini; Pimpla.  
 OX NCBI\_TaxID=135724;  
 RN [1]  
 RP SEQUENCE FROM N.A., AND SEQUENCE OF 23-27.  
 RC TISSUE=Venom, and Venom gland;  
 RX PubMed=15147757; DOI=10.1016/j.ibmb.2004.03.003;  
 RA Parkinson N.M., Conyers C., Keen J., MacNicol A., Smith I.,  
 RA Audsley N., Weaver R.;  
 RT "Towards a comprehensive view of the primary structure of venom  
 proteins from the parasitoid wasp Pimpla hypochondriaca.";  
 RL Insect Biochem. Mol. Biol. 34:565-571 (2004).  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- TISSUE SPECIFICITY: Expressed by the venom gland.  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
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 or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 KW EMBL; AJ438996; CAD27741.1; -  
 DR Direct protein sequencing; Signal.  
 FT SIGNAL 1 22  
 FT CHAIN 23 115 Cysteine-rich venom protein 5.  
 SQ SEQUENCE 115 AA; 12678 MW; 4AB954F302C60118 CRC64;  
 Query Match 52.0%; Score 78; DB 1; Length 115;  
 Best Local Similarity 50.0%; Pred. No. 0.033;  
 Matches 13; Conservative 2; Mismatches 11; Indels 0; Gaps 0;  
 QY 1 CKSXGSSCSXTSYNCRSCNXYTKRC 26  
 DB 26 CSSMGASCQIGSATCCGCVNHTLRC 51  
 RESULT 5  
 CXO7\_CONGE STANDARD; PRT; 29 AA.  
 AC P05483;  
 DT 01-NOV-1988 (Rel. 09, Created)  
 DT 01-NOV-1988 (Rel. 09, Last sequence update)  
 DT 25-OCT-2004 (Rel. 45, Last annotation update)  
 DE Omega-conotoxins GVIIA/GVIIB (Shaker peptides GVIIA/GVIIIB) (SNX-178).  
 OS Conus geographus (Geography cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=6491;  
 RN [1]  
 RP SEQUENCE.  
 RX MEDLINE=86070213; PubMed=4071055;  
 RA Olivera B.M., Gray W.R., Zeikus R.D., McIntosh J.M., Varga J.,  
 RA Rivier J.E., de Santos V., Cruz L.J.;  
 RT "Peptide neurotoxins from fish-hunting cone snails.";





DT 28-FEB-2003 (Rel. 41, Created)  
DT 28-FEB-2003 (Rel. 41, Last sequence update)  
DT 05-JUL-2004 (Rel. 44, Last annotation update)  
DE Omega-conotoxin CVIA precursor.  
OS Conus catus (Cat cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=101291;  
RN [1]  
RP SEQUENCE FROM N.A., SEQUENCE OF 46-70, AND SYNTHESIS.  
RC TISSUE=Venom, and Venom duct;  
RX MEDLINE=20519630; PubMed=10938268; DOI=10.1074/jbc.M002252200;  
RA Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,  
RA Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,  
RA Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;  
RT "Novel omega-conotoxins from Conus catus discriminate among neuronal  
RT calcium channel subtypes.";  
RL J. Biol. Chem. 275:35335-35344 (2000).  
RC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind  
CC and block voltage-sensitive calcium channels (VSCC) (By  
CC similarity). This toxin blocks N-type calcium channels.  
CC -!- SUBCELLULAR LOCATION: Secreted.  
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type  
CC family.  
DR HSSP; P05484; 1FEO.  
DR InterPro; IPR004214; Conotoxin.  
DR Pfam; PF02950; Conotoxin; 1.  
KW Amidation; Calcium channel inhibitor; Direct protein sequencing;  
KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Signal;  
KW Toxin.  
FT SIGNAL 1 22 Potential.  
FT PROPEP 23 45  
FT PEPTIDE 46 70 Omega-conotoxin CVIA.  
FT DISULFID 46 61 By similarity.  
FT DISULFID 53 65 By similarity.  
FT DISULFID 60 70 By similarity.  
FT MOD\_RES 70 70 Cysteine amide (G-71 provides amide  
FT group).  
SQ SEQUENCE 71 AA; 7665 MW; B99D9C7C74996D01 CRC64;  
Query Match 49.7%; Score 74.5; DB 1; Length 71;  
Best Local Similarity 55.6%; Pred. No. 0.057;  
Matches 15; Conservative 3; Mismatches 6; Indels 3; Gaps 2;  
QY 1 CKSXGSCSXTSYNCCR-SCNXTKRC 26  
|||:|||||:|||||:|  
DB 46 CKSTGASCRRTSYDCTGSCR--SGRC 70  
|||:|||||:|||||:|  
RESULT 10  
CXOD CONNA STANDARD; PRT; 25 AA.  
ID CXOB CONNA  
AC P05485;  
DT 01-NOV-1988 (Rel. 09, Created)  
DT 01-NOV-1988 (Rel. 09, Last sequence update)  
DT 05-JUL-2004 (Rel. 44, Last annotation update)  
DE Omega-conotoxin WVIIB (SNX-159).  
OS Conus magus (Magus cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=6492;  
RN [1]  
RP SEQUENCE.  
RX MEDLINE=87299637; PubMed=2441741;  
RA Olivera B.M., Cruz L.J., de Santos V., Lecheminant G.W., Griffin D.,  
RA Zeikus R.D., McIntosh J.M., Galyean R., Varga J., Gray W.R.,  
RA Rivier J.E.;  
RT "Neuronal calcium channel antagonists. Discrimination between calcium  
RT channel subtypes using omega-conotoxin from Conus magus venom.";  
RL Biochemistry 26:2086-2090 (1987).  
CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind  
CC and block voltage-sensitive calcium channels (VSCC).  
CC -!- SUBCELLULAR LOCATION: Secreted.  
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type  
CC family.  
DR PIR; JH0701; JH0701.  
DR HSSP; P05484; 1DW4.  
KW Amidation; Calcium channel inhibitor; Direct protein sequencing;  
KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Toxin.  
FT DISULFID 1 16  
FT DISULFID 8 20  
FT DISULFID 15 25  
FT MOD\_RES 25 25 Cysteine amide.  
SQ SEQUENCE 25 AA; 2626 MW; E4B9CE5EFAA3734D CRC64;  
Query Match 49.0%; Score 73.5; DB 1; Length 25;  
Best Local Similarity 61.9%; Pred. No. 0.032;  
Matches 13; Conservative 2; Mismatches 5; Indels 1; Gaps 1;  
QY 1 CKSXGSCSXTSYNCCR-SCN 20  
|||:|||||:|||||:|  
DB 1 CKGKGASCRRTSYDCTGSCN 21  
|||:|||||:|||||:|  
RESULT 11  
Q9NCV6 PRELIMINARY; PRT; 66 AA.  
ID Q9NCV6  
AC Q9NCV6;  
DT 01-OCT-2000 (TRENBLrel. 15, Created)  
DT 01-OCT-2000 (TRENBLrel. 15, Last sequence update)  
DT 01-OCT-2003 (TRENBLrel. 25, Last annotation update)  
DE Four-loop conotoxin (Fragment).  
OS Conus catus (Cat cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=101291;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA Duda T.P., Palumbi S.R.;  
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
DR EMBL; AF174237; AAF89901.1; -.  
DR HSSP; P05484; 1FEO.  
DR GO; GO:0005576; C:extracellular; IEA.  
DR GO; GO:0008200; P:ion channel inhibitor activity; IEA.  
DR GO; GO:0009405; P:pathogenesis; IEA.  
DR InterPro; IPR004214; Conotoxin.  
DR Pfam; PF02950; Conotoxin; 1.  
FT NON\_TER 1  
SQ SEQUENCE 66 AA; 7084 MW; EAL1338A68C617DA CRC64;  
Query Match 49.0%; Score 73.5; DB 2; Length 66;  
Best Local Similarity 61.9%; Pred. No. 0.071;  
Matches 13; Conservative 3; Mismatches 4; Indels 1; Gaps 1;  
QY 1 CKSXGSCSXTSYNCCR-SCN 20  
|||:|||||:|||||:|  
DB 41 CKSTGASCRRTSYDCTGSCD 61  
|||:|||||:|||||:|  
RESULT 12  
CXOD CONCT STANDARD; PRT; 73 AA.  
ID CXOD CONCT  
AC P58920;  
DT 28-FEB-2003 (Rel. 41, Created)  
DT 28-FEB-2003 (Rel. 41, Last sequence update)  
DT 05-JUL-2004 (Rel. 44, Last annotation update)  
DE Omega-conotoxin CVID precursor.  
OS Conus catus (Cat cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.

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OX NCBI_TaxID=101291;
RN [1]
RP SEQUENCE FROM N.A., SEQUENCE OF 46-72, SYNTHESIS, AND STRUCTURE BY
RP NMR.
RC TISSUE=Venom, and Venom duct;
RX MEDLINE=20519630; PubMed=10938268; DOI=10.1074/jbc.M002252200;
RA Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,
RA Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,
RA Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;
RT "Novel omega-conotoxins from Conus catus discriminate among neuronal
RT calcium channel subtypes.";
RL J. Biol. Chem. 275:35335-35344 (2000).
CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC and block voltage-sensitive calcium channels (VSCC) (By
CC similarity). This toxin blocks N-type calcium channels.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type
CC family.
DR HSP: P05484; 1DW4.
DR InterPro; IPR004214; Conotoxin.
DR Pfam; PF02950; Conotoxin; 1.
KW Amidation; Calcium channel inhibitor; Direct protein sequencing;
KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Signal;
KW Toxin.
FT SIGNAL 1 22 Potential.
FT PROPEP 23 45
FT PEPTIDE 46 72 Omega-conotoxin CVID.
FT DISULFID 46 61 By similarity.
FT DISULFID 53 65 By similarity.
FT DISULFID 60 72 By similarity.
FT MOD_RES 72 72 Cysteine amide (G-73 provides amide
FT group).
SQ SEQUENCE 73 AA; 7748 MW; C4CEBD30C77DAEC3 CRC64;

Query Match 47.7%; Score 71.5; DB 1; Length 73;
Best Local Similarity 48.1%; Pred. No. 0.13;
Matches 13; Conservative 3; Mismatches 10; Indels 1; Gaps 1;

QY 1 CKSXGSSCSXTSYNCCR-SCNXYTKRC 26
||| | | | | | | | | | | | | | |
Db 46 CKSGAKGSKLWYDCSGSGCTGRC 72

RESULT 13
CXOD_CONCT STANDARD; PRT; 25 AA.
AC P58918;
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Omega-conotoxin CVID.
OS Conus catus (Cat cone).
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=101291;
RN [1]
RP SEQUENCE, AND SYNTHESIS.
RC TISSUE=Venom;
RX MEDLINE=20519630; PubMed=10938268; DOI=10.1074/jbc.M002252200;
RA Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,
RA Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,
RA Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;
RT "Novel omega-conotoxins from Conus catus discriminate among neuronal
RT calcium channel subtypes.";
RL J. Biol. Chem. 275:35335-35344 (2000).
CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC and block voltage-sensitive calcium channels (VSCC) (By
CC similarity). This toxin blocks N-, P-, and Q-type calcium
CC channels.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.

CC NCBI_TaxID=101291;
RN [1]
RP SEQUENCE FROM N.A., SEQUENCE OF 46-72, SYNTHESIS, AND STRUCTURE BY
RP NMR.
RC TISSUE=Venom, and Venom duct;
RX MEDLINE=20519630; PubMed=10938268; DOI=10.1074/jbc.M002252200;
RA Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,
RA Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,
RA Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;
RT "Novel omega-conotoxins from Conus catus discriminate among neuronal
RT calcium channel subtypes.";
RL J. Biol. Chem. 275:35335-35344 (2000).
CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC and block voltage-sensitive calcium channels (VSCC) (By
CC similarity). This toxin blocks N-type calcium channels.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type
CC family.
DR HSP: P05484; 1DW4.
DR InterPro; IPR004214; Conotoxin.
DR Pfam; PF02950; Conotoxin; 1.
KW Amidation; Calcium channel inhibitor; Direct protein sequencing;
KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Signal;
KW Toxin.
FT SIGNAL 1 22 Potential.
FT PROPEP 23 45
FT PEPTIDE 46 72 Omega-conotoxin CVID.
FT DISULFID 46 61 By similarity.
FT DISULFID 53 65 By similarity.
FT DISULFID 60 72 By similarity.
FT MOD_RES 72 72 Cysteine amide (G-73 provides amide
FT group).
SQ SEQUENCE 73 AA; 7748 MW; C4CEBD30C77DAEC3 CRC64;

Query Match 47.7%; Score 71.5; DB 1; Length 73;
Best Local Similarity 48.1%; Pred. No. 0.13;
Matches 13; Conservative 3; Mismatches 10; Indels 1; Gaps 1;

QY 1 CKSXGSSCSXTSYNCCR-SCNXYTKRC 26
||| | | | | | | | | | | | | | |
Db 46 CKSGAKGSKLWYDCSGSGCTGRC 72

RESULT 14
CXOD_CONMA STANDARD; PRT; 29 AA.
AC Q26350;
DT 15-DEC-1998 (Rel. 37, Created)
DT 15-DEC-1998 (Rel. 37, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Omega-conotoxin MVIID precursor (SNX-238) (Fragment).
OS Conus magus (Magus cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6492;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=94150815; PubMed=8107968; DOI=10.1016/0028-3908(93)90008-Q;
RA Monje V.D., Haack J.A., Naisbitt S.R., Miljanich G., Ramachandran J.,
RA Nadeasdi L., Olivera B.M., Hillyard D.R., Gray W.R.;
RT "A new Conus peptide ligand for Ca channel subtypes.";
RL Neuropharmacology 32:1141-1149(1993).
RN [2]
RP STRUCTURE BY NMR.
RX MEDLINE=99121185; PubMed=9920728; DOI=10.1006/bbrc.1998.9878;
RA Civera C., Vazquez A., Sevilla J.M., Bruix M., Gago F., Garcia A.G.,
RA Sevilla P.;
RT "Solution structure determination by two-dimensional 1H NMR of omega-
RT conotoxin MVIID, a calcium channel blocker peptide.";
RL Biochem. Biophys. Res. Commun. 254:32-35(1999).
CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC and block voltage-sensitive calcium channels (VSCC). This toxin
CC blocks channels of the N-type as well as other types.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type
CC family.
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CC or send an email to license@isb-sib.ch).
DR EMBL; S69322; AAB29902.1; -.
DR PIR; A58537; A58537.
DR HSP: P05484; 1PEO.
DR InterPro; IPR004214; Conotoxin.
KW Amidation; Calcium channel inhibitor; Ionic channel inhibitor;
KW Neurotoxin; Presynaptic neurotoxin; Toxin.
FT NON_TER 1 1
FT PROPEP <1 3
FT PEPTIDE 4 28 Omega-conotoxin MVIID.

```

FT DISULFID 4 19  
 FT DISULFID 11 23  
 FT DISULFID 18 28  
 FT MOD\_RES 28 28  
 FT Cysteine amide (G-29 provides amide group).  
 SQ SEQUENCE 29 AA; 3104 MW; 9504B2EA3779CB22 CRC64;

Query Match 46.3%; Score 69.5; DB 1; Length 29;  
 Best Local Similarity 57.1%; Pred. No. 0.11;  
 Matches 12; Conservative 2; Mismatches 6; Indels 1; Gaps 1;

QY 1 CKSXGSSCSXTSYNCCR-SCN 20  
 Db. 4 CQGRGASCRKWTWNCSSCN 24

RESULT 15  
 Q9N633 PRELIMINARY; PRT; 66 AA.  
 AC Q9N633  
 DT 01-OCT-2000 (Tremblrel. 15, Created)  
 DT 01-OCT-2000 (Tremblrel. 15, Last sequence update)  
 DT 05-JUL-2004 (Tremblrel. 27, Last annotation update)  
 DE Four-loop conotoxin (Fragment).  
 OS Conus catus (Cat cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174219; AAF89883.1; -;  
 DR EMBL; AF174215; AAF89879.1; -;  
 DR EMBL; AF174214; AAF89878.1; -;  
 DR HSP; P05484; IFEQ.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 DR GO; GO:0009405; P:pathogenesis; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 FT NON\_TER 1  
 SQ SEQUENCE 66 AA; 7053 MW; E445338AC698A1AC CRC64;

Query Match 46.3%; Score 69.5; DB 2; Length 66;  
 Best Local Similarity 51.9%; Pred. No. 0.21;  
 Matches 14; Conservative 3; Mismatches 7; Indels 3; Gaps 2;

QY 1 CKSXGSSCSXTSYNCCR-SCNYTKRC 26  
 Db. 41 CKKGASCRRTSYDCTGSCR--SGRC 65

Search completed: March 23, 2005, 00:16:38  
 Job time : 73.0891 secs

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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:44:17 ; Search time 77.6238 Seconds  
(without alignments)  
119.580 Million cell updates/sec

Title: US-09-787-082A-13  
Perfect score: 140  
Sequence: 1 CRSSGSGXGVTSICGRCYRGKCT 24

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : A. Geneseq\_16Dec04.\*  
1: geneseqp1980s.\*  
2: geneseqp1990s.\*  
3: geneseqp2000s.\*  
4: geneseqp2001s.\*  
5: geneseqp2002s.\*  
6: geneseqp2003as.\*  
7: geneseqp2003bs.\*  
8: geneseqp2004s.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	138	98.6	24	2 AAR32782	SVIA omeg
2	138	98.6	24	2 AAW12972	Aaw12972 Omega con
3	138	98.6	24	3 AAY56478	Aay56478 Natural o
4	137	97.9	24	2 AAR39613	Aar39613 SVIA/SNK1
5	137	97.9	24	2 AAR37758	Aar37758 SVIA/SNK-
6	137	97.9	24	2 AAR76094	Aar76094 Omega con
7	137	97.9	24	2 AAW19549	Aaw19549 Natural o
8	137	97.9	24	2 AAW72610	Aaw72610 Conus gen
9	137	97.9	24	2 AAW95569	Aaw95569 Omega-con
10	137	97.9	24	2 AAY42341	Aay42341 Omega-con
11	137	97.9	24	3 AAB14357	Aab14357 Omega-con
12	137	97.9	24	4 AAB19447	Aab19447 Primary s
13	137	97.9	24	5 ABB96682	Abb96682 Omega-con
14	132	94.3	24	3 AAY87536	Aay87536 Mature co
15	132	94.3	72	3 AAY87537	Aay87537 Conotoxin
16	130	92.9	24	5 ABB96789	Abb96789 Omega-con
17	123	87.9	24	5 AAY87538	Aay87538 Mature co
18	123	87.9	72	3 AAY87539	Aay87539 Conotoxin
19	97	69.3	24	5 ABB96792	Abb96792 Omega-con
20	96	68.6	24	5 ABB96896	Abb96896 Omega-con
21	96	68.6	71	5 ABB96684	Abb96684 Omega-con
22	76	54.3	27	5 ABB96761	Abb96761 Omega-con
23	76	54.3	27	5 ABB96742	Abb96742 Omega-con
24	73	52.1	27	5 ABB96847	Abb96847 Omega-con
25	73	52.1	27	5 ABB96858	Abb96858 Omega-con

26	73	52.1	54	5 ABB96639	Abb96639 Omega-con
27	73	52.1	72	5 ABB96655	Abb96655 Omega-con
28	73	52.1	423	8 ADP31323	Adp31323 Human sec
29	70	50.0	645	8 ADP31067	Adp31067 Human sec
30	68	48.6	27	5 ABB96753	Abb96753 Omega-con
31	68	48.6	2201	8 ADP31026	Adp31026 Human sec
32	67.5	48.2	31	5 ABB96715	Abb96715 Omega-con
33	66	47.1	25	5 ABB96768	Abb96768 Omega-con
34	66	47.1	25	5 ABB96871	Abb96871 Omega-con
35	66	47.1	35	2 AAR70721	Aar70721 New omega
36	66	47.1	35	3 AAY87544	Aay87544 Mature co
37	66	47.1	35	5 ABB96891	Abb96891 Omega-con
38	66	47.1	71	5 ABB96662	Abb96662 Omega-con
39	66	47.1	77	3 AAY87545	Aay87545 Conotoxin
40	65.5	46.8	300	8 ADP31301	Adp31301 Human sec
41	65.5	46.8	336	8 ADP30470	Adp30470 Human sec
42	65	46.4	25	5 ABB96900	Abb96900 Omega-con
43	65	46.4	25	5 ABB96799	Abb96799 Omega-con
44	65	46.4	26	5 ABB96713	Abb96713 Omega-con
45	65	46.4	27	5 ABB96861	Abb96861 Omega-con

ALIGNMENTS

RESULT 1  
AAR32782  
ID AAR32782 standard; peptide; 24 AA.  
XX  
AC AAR32782;  
XX  
DT 28-JUN-1993 (first entry)  
XX  
DE SVIA omega conotoxin peptide.  
XX  
KW OCT; neuronal damage reduction; ischemia; secondary damage; stroke.  
XX  
OS Synthetic.  
XX  
PN US5189020-A.  
XX  
PD 23-FEB-1993.  
XX  
PF 02-AUG-1990; 90US-00561766.  
XX  
PR 22-NOV-1989; 89US-00440094.  
XX  
PA (NEUR-) NEUREX CORP.  
XX  
PI Miljanich GP, Bitner RS, Bowersox SS, Fox JA, Valentino KL;  
PI Yamashiro DH, Taubokawa M;  
XX  
DR WPI; 1993-085564/10.  
XX  
PT Reducing neuronal damage due to ischaemia - involves using omega  
PT conotoxin peptide or fragment.  
XX  
PS Disclosure; Fig 1; 32pp; English.  
XX  
CC The sequence is that of the SVIA omega conotoxin (OCT) peptide which can  
CC bind to an OCT binding protein, inhibit voltage-gated calcium currents  
CC selectively in neuronal tissue and inhibit neuronal transmitter release  
CC selectively in neuronal tissue. These properties all occur within the  
CC range of those of WPIB, GVIA, RVIA, or pref. MVIIB and GVIA OCTs. The  
CC peptide can be used in reducing or preventing both anatomical and  
CC functional secondary damage related to ischemia, generally as associated  
CC with stroke  
XX  
SQ Sequence 24 AA;

Query Match 98.6%; Score 138; DB 2; Length 24;  
Best Local Similarity 100.0%; Pred. No. 5.3e-09;  
Matches 24; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CRSSGSXCGVTSICGRCYRGKCT 24  
 |||||  
 Db 1 CRSSGSXCGVTSICGRCYRGKCT 24

## RESULT 2

AAW12972  
 ID AAW12972 standard; peptide; 24 AA.

AC AAW12972;

DT 25-MAR-2003 (revised)

DT 22-APR-1997 (first entry)

DE Omega conopeptide SNX-157.

KW Omega conopeptide; analgesic; treatment; neuropathic pain; inhibition;  
 KW neuronal damage; schizophrenia; tardive dyskinesia; analgesia;  
 KW acute dystonic reactions; inflammation; epilepsy.

OS Synthetic.

Key Location/Qualifiers  
 Modified-site 7 /label= Hyp

PN US5587454-A.

PD 24-DEC-1996.

PF 15-APR-1993; 93US-00049794.

PR 30-DEC-1991; 91US-00814759.

PR 30-DEC-1992; 92WO-US011349.

XX (NEUR-) NEUREX CORP.

XX Gohlil KC, Miljanich GP, Valentino KL, Justice A, Singh T;

XX WPI; 1997-064830/06.

DR Omega conopeptide(s) - useful as analgesics, esp. for treating  
 PT neuropathic pain.

XX Disclosure; Col 43-44; 58pp; English.

CC The present peptide is an omega conopeptide, useful as an analgesic,  
 CC especially for treating neuropathic pain. The peptide, which can be  
 CC prepared by solid phase synthesis, can also be used to inhibit neuronal  
 CC damage and treat schizophrenia, tardive dyskinesia, acute dystonic  
 CC reactions, inflammation and epilepsy. (Updated on 25-MAR-2003 to correct  
 CC PF field.)

XX Sequence 24 AA;

Query Match 98.6%; Score 138; DB 2; Length 24;

Best Local Similarity 100.0%; Pred. No. 5.3e-09;

Matches 24; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CRSSGSXCGVTSICGRCYRGKCT 24

Db 1 CRSSGSXCGVTSICGRCYRGKCT 24

## RESULT 3

AAV56478

ID AAV56478 standard; peptide; 24 AA.

XX AAV56478;

DT 16-FEB-2000 (first entry)

XX

DE Natural omega conopeptide SVIA/SNX-157.

XX Omega conopeptide; analgesic; nociceptive; neuropathic; pain; conotoxin;  
 KW marine snail; peptide toxin; inflammation; binding;  
 KW voltage-gated calcium channel; inhibition; norepinephrine; noradrenaline;  
 KW anti-inflammatory.

OS Conus sp.

Key Location/Qualifiers  
 Misc-difference 7 /note= "unspecified"

PN US5994305-A.

PD 30-NOV-1999.

XX 21-AUG-1998; 98US-00138439.

XX 30-DEC-1991; 91US-00814759.

PR 15-APR-1993; 93US-00049794.

PR 03-JUL-1996; 96US-00675354.

PR 01-NOV-1996; 96US-00742774.

XX (ELAN-) ELAN PHARM INC.

XX Justice A, Singh T, Valentino KL, Miljanich GP, Gohlil KC;

XX WPI; 2000-038270/03.

XX Measuring the activity of test compounds in blocking voltage-gated  
 PT calcium channels, binding to the omega conopeptide binding site and  
 PT inhibiting norepinephrine (noradrenaline) release for treating  
 PT inflammation.

PS Disclosure; Fig 1; 47pp; English.

XX A method has been developed of selecting a test compound for treating  
 CC inflammation. The method comprises measuring the activity of the test  
 CC compound in blocking voltage-gated calcium channels, binding to the omega  
 CC conopeptide binding site and inhibiting norepinephrine (noradrenaline)  
 CC release from nervous tissue. The method is useful for selecting compounds  
 CC for treating inflammation. The selected compounds are capable of  
 CC producing analgesia in a mammalian subject with chronic or intractable  
 CC pain. Analgesia caused by selected compounds may reduce the reliance on  
 CC opioid analgesic agents of the prior art which cause dependency and  
 CC tolerance, requiring potentially dangerous increases in opioid doses to  
 CC achieve the analgesic effect. The present sequence represents an omega  
 CC conopeptide given in the present invention

XX Sequence 24 AA;

Query Match 98.6%; Score 138; DB 3; Length 24;

Best Local Similarity 100.0%; Pred. No. 5.3e-09;

Matches 24; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CRSSGSXCGVTSICGRCYRGKCT 24

Db 1 CRSSGSXCGVTSICGRCYRGKCT 24

## RESULT 4

AAR39613

ID AAR39613 standard; peptide; 24 AA.

XX AAR39613;

XX 25-MAR-2003 (revised)

DT 20-DEC-1993 (first entry)

XX SVIA/SNX157.

XX Omega conopeptide; OCT; analgesia; inhibition; voltage-gated;

KW calcium channel; neurone; contraction; guinea pig; ileum; MVIIA;  
 KW binding site; toxin; marine; snail; Conus; opiod; chronic pain;  
 XX narcotics.

OS Synthetic.

Key Location/Qualifiers

FT Disulfide-bond 1..15

FT Modified-site 7

FT /note= "4Hyp"

FT Disulfide-bond 8..18

FT Disulfide-bond 14..23

XX WO9313128-A1.

XX 08-JUL-1993.

XX 30-DEC-1992; 92WO-US011349.

XX 30-DEC-1991; 91US-00814759.

XX (NEUR-) NEUREX CORP.

XX Justice A, Singh T, Gohil K, Valentino KL, Miljanich GP;

XX WPI; 1993-227270/28.

XX Use of omega-cono-peptide(s) which selectively inhibit voltage-gated

XX calcium channels - to induce analgesia, enhance opiate analgesics, treat

XX pain etc.

XX Claim 1; Fig 1; 90pp; English.

XX The sequences given in AAR39608-30 are omega conopeptides (OCTs) and

XX derivatives of these, which may be used to produce analgesia in a mammal.

XX These OCTs inhibit voltage-gated calcium channels selectively in neuronal

XX tissue. This is shown by the peptides ability to stimulate contraction in

XX guinea pig ileum and to bind to OCT MVIIA binding sites present in

XX neuronal tissue. OCTs are components of peptide toxins derived from

XX marine snails of the genus Conus, and act as calcium channel blockers.

XX These OCTs may be used to replace opiods in the treatment of chronic pain

XX or to reduce the opiod dosage required. This helps to reduce dependence

XX CC on field.

XX PN field.)

XX Sequence 24 AA;

Query Match 97.9%; Score 137; DB 2; Length 24;

Best Local Similarity 95.8%; Pred. No. 6.9e-09;

Matches 23; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CRSSGSGCGVTSICGRCYRGKCT 24

Db 1 CRSSGSGCGVTSICGRCYRGKCT 24

RESULT 5

AAR37758

ID AAR37758 standard; peptide; 24 AA.

XX AAR37758;

XX 25-MAR-2003 (revised)

DT 08-SEP-1993 (first entry)

XX SVIA/SNX-157.

XX Ischaemia; neuronal; omega-conotoxin; OCT; MVIIA; MVIID; MVIIB;

KW GVIA; GVIIA; RVIA; SVIA; TVIA; SVIB; SNX-207; stroke; delayed treatment;

KW antihistamine; blood pressure; N-type voltage-gated Ca currents;

KW N-channel mediated neurotransmitter release.

XX Synthetic.

XX Key Location/Qualifiers

FT Disulfide-bond 1..15

FT Modified-site 7

FT /note= "hydroxyproline"

FT Disulfide-bond 8..18

FT Disulfide-bond 14..23

XX WO9310145-A1.

XX 27-MAY-1993.

XX 12-NOV-1992; 92WO-US009766.

XX 12-NOV-1991; 91US-00789913.

XX 17-JUL-1992; 92US-00916478.

XX (NEUR-) NEUREX CORP.

XX Miljanich GP, Bowersox SS, Fox JA, Valentino KL, Bitner RS;

XX Yamashiro DH;

XX WPI; 1993-182487/22.

XX Redn. of neuronal damage caused by ischaemia - by admin. of cpds. that

XX bind specifically to omega-conotoxin MVIIA binding sites.

XX Disclosure; Fig 1; 103pp; English.

XX Ischaemia-related neuronal damage in mammals is reduced by admin., 4-24

XX hr after onset of ischaemia, of a cpd. (I) which binds selectively to an

XX omega-conotoxin (OCT) MVIIA site in neuronal tissue. (I) has selectivity

XX at least 100 expressed as ratio of binding affinity for the MVIIA site to

XX that for the MVIIC site. (I) is one of the OCTs MVIIA, MVIIB, GVIA, GVIIA

XX or RVIA or it is the cpd. SNX-207. (I) is esp. used to reduce neuronal

XX damage caused by stroke. By delaying admin. for some time (compare

XX US051403 where cpds. are given within 1 hr of the onset of ischaemia) a

XX greater redn. in neuronal damage is achieved. (I) is admin. e.g. by

XX intracerebroventricular (ICV) injection at 0.1-20 microg/kg, but can also

XX be given i.v. (opt. after treatment with antihistamines to minimise redn.

XX in blood pressure caused by (I)). (I) is also at least as effective as

XX the specified conotoxins for (1) selective inhibition of N-type voltage-

XX gated Ca currents in neuronal tissue and (2) selective inhibition of N-

XX channel mediated neurotransmitter release in neuronal tissue. Primary

XX sequences of omega-conopeptides are given in AAR37752-62. Several analog

XX omega-conopeptides are given in AAR37763-76. (Updated on 25-MAR-2003 to

XX correct PN field.)

XX Sequence 24 AA;

Query Match 97.9%; Score 137; DB 2; Length 24;

Best Local Similarity 95.8%; Pred. No. 6.9e-09;

Matches 23; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CRSSGSGCGVTSICGRCYRGKCT 24

Db 1 CRSSGSGCGVTSICGRCYRGKCT 24

RESULT 6

AAR76094

ID AAR76094 standard; peptide; 24 AA.

XX AAR76094;

XX 27-AUG-2003 (revised)

DT 25-MAR-2003 (revised)

DT 02-FEB-1996 (first entry)

XX Omega conotoxin SVIA peptide.

XX Omega conotoxin; marine snail; Conus; voltage-gated Ca channel blocker;

KW synaptosome; membrane; fish electric organ; mammalian brain; ischaemia;

XX Synthetic.

binding protein; binding affinity; stroke.

XX OS Conus.  
XX FH Disulfide-bond 1. .15  
XX FT Modified-site 7  
XX FT Disulfide-bond 8. .18  
XX FT Disulfide-bond 14. .23  
XX FT Modified-site 24  
XX FT /note= "amidated C-terminus"  
XX PN US5424218-A.  
XX PD 13-JUN-1995.  
XX PF 04-NOV-1993; 93US-00147714.  
XX PR 22-NOV-1989; 89US-00440094.  
XX PR 02-AUG-1990; 90US-00561766.  
XX PR 23-MAR-1992; 92US-00855269.  
XX PA (NEUR-) NEUREX CORP.  
XX PI Valentino KL, Bowersox SS, Bitner RS, Miljanich GP, Yamaashiro DH;  
XX PI Fox JA;  
XX DR WPI; 1995-223694/29.  
XX PT Identifying cpds. able to reduce neuronal damage caused by ischaemia - by  
XX PT measuring their affinity to omega conotoxin MVIIA binding site and  
XX PT ability e.g. to inhibit voltage gated calcium channels.  
XX PS Disclosure; Fig 1; 31pp; English.  
XX CC The peptides AAR76089-95 are naturally occurring omega conotoxin (OCT)  
XX CC peptides derived from marine snails of the Conus genus. The peptide  
XX CC sequences were used to chemically synthesise the OCT peptide fragments  
XX CC AAR76096-R76109. The OCT peptides act as voltage-gated Ca channel  
XX CC blockers by binding to a 210 kD protein from synaptosomal membrane  
XX CC preparations from fish electric organ or mammalian brains. The peptides  
XX CC and their synthesised fragments can be used to screen for compounds that  
XX CC bind to the OCT binding protein, by displacing a high affinity labelled  
XX CC OCT, such as MVIIA, from a synaptosomal membrane preparation. The  
XX CC compounds should have binding affinities and activities at least equal to  
XX CC those of the natural peptides (Ki 0.44-324 nM). The screened compounds  
XX CC are potentially useful in treating ischaemic conditions, esp. stroke, and  
XX CC can reduce sec. anatomical and functional damage associated with those  
XX CC conditions. (Updated on 25-MAR-2003 to correct PF field.) (Updated on 27-  
XX CC AUG-2003 to correct OS field.)  
XX SQ Sequence 24 AA;  
Query Match 97.9%; Score 137; DB 2; Length 24;  
Best Local Similarity 95.8%; Pred. No. 6.9e-09;  
Matches 23; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
QY 1 CRSSGSGCGVTSICCGRCYRGKCT 24  
Db 1 CRSSGSGCGVTSICCGRCYRGKCT 24  
RESULT 7  
AAW19549  
ID AAW19549 standard; peptide; 24 AA.  
XX AC AAW19549;  
XX AC AAW19549;  
XX DT 27-AUG-2003 (revised)  
XX DT 10-OCT-1997 (first entry)  
XX DE Natural omega-conopeptide SVIA/SNX-157 used for pain relief.

XX KW Conopeptide; cone snail; pain; analgesic; neuropathy; epidural;  
XX KW N-type voltage-sensitive calcium channel; block; Conus.  
XX OS Conus.  
XX FH Key Location/Qualifiers  
XX FT Misc-difference 7  
XX FT /label= 4Hyp  
XX PN WO9701351-A1.  
XX PD 16-JAN-1997.  
XX PF 26-JUN-1996; 96WO-US011041.  
XX PR 27-JUN-1995; 95US-00496847.  
XX PR 08-MAR-1996; 96US-00613400.  
XX PA (NEUR-) NEUREX CORP.  
XX PI Amstutz GA, Bowersox SS, Gohil K, Adriaenssens PI, Kristipati R;  
XX PI Gadbois T, Pettus MR, Luther RR;  
XX DR WPI; 1997-100012/09.  
XX PT Stable omega conopeptide compositions - for producing analgesia and for  
XX PT inhibiting progression of neuropathic pain disorders.  
XX PS Disclosure; Fig 2; 47pp; English.  
XX CC AAW19544-W19553 are naturally occurring omega conopeptides (OCs) isolated  
XX CC from Conus sp. (cone snails). The peptides and their analogues are used  
XX CC as analgesics acting by blocking N-type voltage-sensitive calcium  
XX CC channels. The OCs can be used to treat neuropathic pain as a result of  
XX CC e.g. insult to the spinal cord or peripheral nerves, cancer, bone  
XX CC degenerative diseases, AIDS, reflex sympathetic dystrophy, herpes zoster  
XX CC neuropathy, diabetic neuropathy, hyperesthesia, allodynia or  
XX CC hyperalgesia. The OCs are preferably administered in a medicament via an  
XX CC epidural route in a continuous infusion or sustained release formulation.  
XX CC The OCs can provide pain relief when administered epidurally in the  
XX CC absence of a permeation enhancer, at doses that are comparable to  
XX CC effective analgesic doses using intrathecal administration. OC  
XX CC formulations comprising an OC and a carboxylic acid buffer anti-oxidant.  
XX CC They also confer stability to solutions containing them for prolonged  
XX CC treatment methods and long-term storage. (Updated on 27-AUG-2003 to  
XX CC correct OS field.)  
XX SQ Sequence 24 AA;  
Query Match 97.9%; Score 137; DB 2; Length 24;  
Best Local Similarity 95.8%; Pred. No. 6.9e-09;  
Matches 23; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
QY 1 CRSSGSGCGVTSICCGRCYRGKCT 24  
Db 1 CRSSGSGCGVTSICCGRCYRGKCT 24  
RESULT 8  
AAW72610  
ID AAW72610 standard; peptide; 24 AA.  
XX AC AAW72610;  
XX AC AAW72610;  
XX DT 27-AUG-2003 (revised)  
XX DT 06-JAN-1999 (first entry)  
XX DE Conus genus natural omega-conopeptide SVIA/SNX-157.  
XX KW Conus genus; marine snail; cone snail; omega-conopeptide; analgesia;  
XX KW nociceptive pain; neuropathic pain; neuronal tissue; conotoxin;  
XX KW inflammation; schizophrrenia; tardive dyskinesia; acute dystonic reaction;



1

XX 22-NOV-1995; 95US-00562142.  
 PR (ALCO-) ALCON LAB INC.  
 XX  
 PA Hellberg M, Pang I, Kapin M;  
 XX WPI; 1999-579926/49.  
 DR  
 PI  
 XX  
 XX Treatment or prevention of retinal or optic nerve head damage comprises  
 PT administration of an omega-conotoxin derivative.  
 PT  
 XX  
 PS Disclosure; Col 9-10; 7pp; English.  
 XX  
 CC This sequence represents an omega-conotoxin analogue. Omega-conotoxins  
 CC selectively block N-type calcium channels responsible for calcium influx  
 CC in neurons. Acute retinal or optic nerve damage, which can result in the  
 CC loss of vision, is caused by acute trauma and pathological events such as  
 CC ischaemia, hypoxia or oedema. The release of excitatory amino acids is  
 CC implicated in ischaemia-related neuronal and retinal damage, with  
 CC excitatory amino acid release leading to excessive stimulation of post-  
 CC synaptic excitatory amino acid receptors, which can result in cell  
 CC injury. The release of such excitatory amino acids from presynaptic nerve  
 CC terminals is dependent upon an elevation of calcium in the nerve  
 CC terminal. This presynaptic calcium influx is mediated by the N-type  
 CC calcium channels that are inhibited by omega-conotoxins. Intracellular  
 CC administration of at least one omega-conotoxin could be used for the  
 CC treatment or prevention of retinal or optic nerve head damage resulting  
 CC from acute traumatic or acute ischaemic events  
 XX  
 SQ Sequence 24 AA;  
 Query Match 97.9%; Score 137; DB 2; Length 24;  
 Best Local Similarity 95.8%; Pred. No. 6.9e-09;  
 Matches 23; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 CRSSGSGCVTSICCGRCYRGKCT 24  
 DB 1 CRSSGSGCVTSICCGRCYRGKCT 24  
 RESULT 11  
 AAB14357  
 ID AAB14357 standard; peptide; 24 AA.  
 XX  
 AC AAB14357;  
 XX  
 DT 06-DEC-2000 (first entry)  
 XX  
 DE Omega-conopeptide SVIA/SNX-157.  
 XX  
 KW Marine snail; omega-conopeptide; calcium channel blocker; SVIA; SNX-157;  
 KW toxin; analgesic; antiinflammatory; anticonvulsant; neuroleptic;  
 KW norepinephrine release inhibitor; schizophrenia; tardive dyskinesia;  
 KW acute dystonic reaction; inflammation; epilepsy.  
 XX  
 OS Conus sp.  
 XX  
 FH Key Location/Qualifiers  
 FT Disulfide-bond 1..15  
 FT Modified-site 7 /label= 4Hyp  
 FT Disulfide-bond 8..18  
 FT Disulfide-bond 14..23  
 FT Modified-site 24 /note= "C-terminal amide"  
 XX  
 PN US6087091-A.  
 XX  
 PD 11-JUL-2000.  
 XX  
 PF 23-APR-1999; 99US-00298017.  
 XX

PR 30-DEC-1991; 91US-00814759.  
 PR 15-APR-1993; 93US-00049794.  
 PR 03-JUL-1996; 96US-00675354.  
 PR 01-NOV-1996; 96US-00742774.  
 PR 21-AUG-1998; 98US-00138439.  
 XX (ELAN-) ELAN PHARM INC.  
 PA  
 PI Singh T, Gohil KC, Valentino KL, Miljanich GP, Justice A;  
 XX WPI; 2000-490177/43.  
 DR  
 XX  
 PT Selecting a compound for producing analgesia involves measuring activity  
 PT of test compound in blocking voltage-gated calcium channels, binding to  
 PT omega conopeptide binding site and inhibiting norepinephrine release.  
 XX  
 PS Disclosure; Fig 1; 58pp; English.  
 XX  
 CC The present sequence is an omega-conopeptide from marine snails of the  
 CC genus Conus. Omega-conopeptides are components of peptide toxins produced  
 CC by the cone snails, and which act as calcium channel blockers. Natural  
 CC omega-conopeptides and their derivatives may be useful for producing  
 CC analgesia in nociceptive and neuropathic pain. The peptides bind to omega  
 CC -conopeptide binding sites, which are present mainly in neuronal tissue,  
 CC and inhibit norepinephrine release from nervous tissue. Conopeptides such  
 CC as MW1A and TV1A are effective as therapeutic agents for treating  
 CC neurogenic conditions such as schizophrenia, tardive dyskinesia and acute  
 CC dystonic reactions, inflammation and epilepsy  
 XX  
 SQ Sequence 24 AA;  
 Query Match 97.9%; Score 137; DB 3; Length 24;  
 Best Local Similarity 95.8%; Pred. No. 6.9e-09;  
 Matches 23; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 CRSSGSGCVTSICCGRCYRGKCT 24  
 DB 1 CRSSGSGCVTSICCGRCYRGKCT 24  
 RESULT 12  
 AAB19447  
 ID AAB19447 standard; peptide; 24 AA.  
 XX  
 AC AAB19447;  
 XX  
 DT 06-MAR-2001 (first entry)  
 XX  
 DE Primary sequence of a natural omega-conopeptide SVIA/SNX-157.  
 XX  
 KW Omega-conopeptide; voltage-gated calcium channel inhibitor; analgesic;  
 KW peptide toxin; opiate; pain; neuronal damage; ischemic condition;  
 KW schizophrenia; tardive dyskinesia; acute dystonic reaction; inflammation;  
 KW epilepsy.  
 XX  
 OS Conus sp.  
 XX  
 FH Key Location/Qualifiers  
 FT Disulfide-bond 1..15  
 FT Modified-site 7 /label= HYP  
 FT Disulfide-bond 8..18 /note= "hydroxyproline"  
 FT Disulfide-bond 14..23  
 FT Modified-site 24 /note= "amidated C-terminal"  
 XX  
 PN US6136786-A.  
 XX  
 PD 24-OCT-2000.  
 XX  
 PF 09-SEP-1999; 99US-00392979.  
 XX



PI Lu B, Huang P;  
 XX WPI; 2000-351193/31.  
 XX Conotoxin peptide from brocade cone shells useful as analgesic.  
 XX Claim 1A; Page 5; 20pp; Chinese.  
 XX The invention relates to 14 novel mature conotoxin peptides from marine  
 CC snails (Conus species); conotoxin precursor proteins; and cDNAs encoding  
 CC the conotoxin precursors. The mature peptide sequences were discovered by  
 CC obtaining conotoxin cDNA sequences from mRNA from the brocade cone shell  
 CC (Conus textile) or the line cone shell (Conus striatus). The cDNA  
 CC sequences were used to determine the conotoxin precursor protein  
 CC sequences, and the sequences of the mature conotoxin peptides were  
 CC inferred from the precursor sequences. The mature conotoxin peptides can  
 CC be obtained via chemical synthesis or by in vitro gene expression.  
 CC Conotoxins interfere with synaptic transmission, while others act on  
 CC muscle or at the neuromuscular junction. The 14 novel conotoxins have  
 CC unique receptor specificity and affinity, so can be used as screening  
 CC tools to identify new drugs. Conotoxin #11 (AA87528, AA87529,  
 CC AA87530, AA87532, AA87534, AA87536, AA87538, AA87540, AA87542,  
 CC AA87544 and AA87546 represent mature conotoxins #1-#14, respectively  
 XX Sequence 24 AA;  
 SQ

Query Match 94.3%; Score 132; DB 3; Length 24;  
 Best Local Similarity 91.7%; Pred. No. 2.6e-08;  
 Matches 22; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CRSSGSGCGVTSICGRCYRGKCT 24  
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 DB 1 CRPSGSPCGVTSICGRCYRGKCT 24  
 |||||

Search completed: March 23, 2005, 00:03:04  
 Job time : 78.6238 secs

Query Match 94.3%; Score 132; DB 3; Length 72;  
 Best Local Similarity 91.7%; Pred. No. 6.6e-08;  
 Matches 22; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CRSSGSGCGVTSICGRCYRGKCT 24  
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 DB 49 CRPSGSPCGVTSICGRCYRGKCT 72  
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RESULT 15  
 AA87537  
 ID AA87537 standard; protein; 72 AA.  
 XX AC AA87537;  
 XX DT 18-JUL-2000 (first entry)  
 XX DE Conotoxin peptide #9 precursor.  
 XX KW Conotoxin precursor; brocade cone shell; line cone shell; drug screening;  
 XX OS neuronal inhibitor; muscle inhibitor.  
 XX OS Conus sp.  
 XX PN CN1237584-A.  
 XX PD 08-DEC-1999.  
 XX PF 30-APR-1999; 99CN-00106070.  
 XX PR 30-APR-1999; 99CN-00106070.  
 XX PA (BIOL-) BIOLOGICAL ENG INST ACAD MILITARY MEDICI.  
 XX PI Lu B, Huang P;  
 XX WPI; 2000-351193/31.  
 XX DR N-PSDB; AAA10461.  
 XX PT Conotoxin peptide from brocade cone shells useful as analgesic.  
 XX PS Claim 1A; Page 5; 20pp; Chinese.  
 XX The invention relates to 14 novel mature conotoxin peptides from marine  
 CC snails (Conus species); conotoxin precursor proteins; and cDNAs encoding

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:51:32 ; Search time 19.4059 Seconds  
(without alignments)  
92.321 Million cell updates/sec

Title: US-09-787-082A-13  
Perfect score: 140  
Sequence: 1 CRSSGSCGVTSICGRCYRGKCT 24

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0  
Maximum DB seq length: 200000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : Issued Patents AA:\*  
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2: /cgn2\_6/prodata/1/iaa/5B COMB.pep:\*  
3: /cgn2\_6/prodata/1/iaa/6A COMB.pep:\*  
4: /cgn2\_6/prodata/1/iaa/6B COMB.pep:\*  
5: /cgn2\_6/prodata/1/iaa/PCTUS COMB.pep:\*  
6: /cgn2\_6/prodata/1/iaa/backfiles1.pep:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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1	138	98.6	24	1	US-07-789-913-6
2	138	98.6	24	1	US-08-049-794-6
3	138	98.6	24	1	US-08-496-847-6
4	138	98.6	24	2	US-08-742-774-6
5	138	98.6	24	2	US-08-575-354-6
6	138	98.6	24	2	US-08-965-918-6
7	138	98.6	24	2	US-09-039-168-6
8	138	98.6	24	2	US-09-138-439-6
9	138	98.6	24	3	US-08-613-400A-6
10	138	98.6	24	3	US-09-298-017-6
11	138	98.6	24	3	US-09-392-979A-6
12	138	98.6	24	6	5189020-6
13	138	98.6	24	6	5424218-6
14	138	98.6	24	6	5189020-6
15	138	98.6	24	6	5424218-6
16	66	47.1	35	1	US-08-084-848A-11
17	66	47.1	35	1	US-08-458-499-11
18	64	45.7	25	1	US-07-689-693B-2
19	64	45.7	25	1	US-08-117-080-6
20	64	45.7	25	1	US-07-789-913-2
21	64	45.7	25	1	US-08-049-794-2
22	64	45.7	25	1	US-08-471-329-6
23	64	45.7	25	1	US-08-496-847-2
24	64	45.7	25	2	US-08-742-774-2
25	64	45.7	25	2	US-08-675-354-2
26	64	45.7	25	2	US-08-965-918-2
27	64	45.7	25	2	US-08-915-142-6

28	64	45.7	25	2	US-09-039-168-2	Sequence 2, Appli
29	64	45.7	25	2	US-09-138-439-2	Sequence 2, Appli
30	64	45.7	25	3	US-08-613-400A-2	Sequence 2, Appli
31	64	45.7	25	3	US-09-298-017-2	Sequence 2, Appli
32	64	45.7	25	3	US-09-392-979A-2	Sequence 2, Appli
33	64	45.7	25	6	5189020-1	Patent No. 5189020
34	64	45.7	25	6	5189020-2	Patent No. 5189020
35	64	45.7	25	6	5424218-2	Patent No. 5424218
36	64	45.7	25	6	5189020-1	Patent No. 5189020
37	64	45.7	25	6	5189020-2	Patent No. 5189020
38	64	45.7	25	6	5424218-2	Patent No. 5424218
39	64	45.7	71	1	US-07-689-693B-1	Sequence 1, Appli
40	61.5	43.9	31	4	US-09-894-882-360	Sequence 360, App
41	61.5	43.9	31	4	US-09-894-882-363	Sequence 363, App
42	61	43.6	36	4	US-09-894-882-165	Sequence 165, App
43	60.5	43.2	31	4	US-09-894-882-479	Sequence 479, App
44	60.5	43.2	31	4	US-09-894-882-480	Sequence 480, App
45	60.5	43.2	70	4	US-09-894-882-359	Sequence 359, App

ALIGNMENTS

RESULT 1  
US-07-789-913-6  
; Sequence 6, Application US/07789913  
; Patent No. 5559095  
; GENERAL INFORMATION:  
; APPLICANT: Miljanich, George P.  
; APPLICANT: Bowersox, Stephen S.  
; APPLICANT: Fox, James A.  
; APPLICANT: Valentino, Karen L.  
; APPLICANT: Bitner, Robert S.  
; APPLICANT: Yamashiro, Donald H.  
; TITLE OF INVENTION: Delayed Treatment Method of Reducing  
; TITLE OF INVENTION: Ischemia-Related Neuronal Damage  
; NUMBER OF SEQUENCES: 28  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Law Offices of Peter Dehlinger  
; STREET: 350 Cambridge Avenue, Suite 300  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/07789,913  
; FILING DATE: 19911112  
; CLASSIFICATION: 514  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/561,766  
; FILING DATE: 02-AUG-1990  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/440,094  
; FILING DATE: 22-NOV-1989  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Stratford, Carol A.  
; REGISTRATION NUMBER: 34,444  
; REFERENCE/DOCKET NUMBER: 5865-0005.30  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 324-0880  
; TELEFAX: (415) 324-0960  
; INFORMATION FOR SEQ ID NO: 6:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 24 amino acids  
; TYPE: AMINO ACID  
; TOPOLOGY: both  
; MOLECULE TYPE: peptide  
; HYPOTHETICAL: NO

ANTI-SENSE: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: SNX-157  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 7..8  
OTHER INFORMATION: /note= "where Xaa is  
OTHER INFORMATION: hydroxyproline"  
US-07-789-913-6

Query Match 98.6%; Score 138; DB 1; Length 24;  
Best Local Similarity 100.0%; Pred. No. 1.3e-09;  
Matches 24; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CRSSGSXCGVTSICGRCYRGKCT 24  
Db 1 CRSSGSXCGVTSICGRCYRGKCT 24

## RESULT 2

US-08-049-794-6  
Sequence 6, Application US/08049794  
Patent No. 5587454

GENERAL INFORMATION:  
APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34

CORRESPONDENCE ADDRESS:  
ADDRESSEE: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/049,794

Filing Date: 19930415  
CLASSIFICATION: 514  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/814,759

Filing Date: 30-DEC-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30

TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960

INFORMATION FOR SEQ ID NO: 6:

SEQUENCE CHARACTERISTICS:  
LENGTH: 24 amino acids  
TYPE: AMINO ACID  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: SVIA/SNX-157, FIGURE 1

FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 7

OTHER INFORMATION: /note= "where X is hydroxyproline"

US-08-049-794-6

Query Match 98.6%; Score 138; DB 1; Length 24;  
Best Local Similarity 100.0%; Pred. No. 1.3e-09;  
Matches 24; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CRSSGSXCGVTSICGRCYRGKCT 24  
Db 1 CRSSGSXCGVTSICGRCYRGKCT 24

## RESULT 3

US-08-496-847-6  
Sequence 6, Application US/08496847  
Patent No. 5795864

GENERAL INFORMATION:  
APPLICANT: Amstutz, Gary A.  
APPLICANT: Bowersox, Stephen S.  
APPLICANT: Gohil, Kishorchandra  
APPLICANT: Adriaenssens, Peter I.  
APPLICANT: Kristipati, Ramasharma  
TITLE OF INVENTION: METHODS AND  
TITLE OF INVENTION: FORMULATIONS FOR PREVENTING PROGRESSION OF NEUROPATHIC PAIN  
NUMBER OF SEQUENCES: 36

CORRESPONDENCE ADDRESS:

ADDRESSEE: Dehlinger & Associates  
STREET: 350 Cambridge Avenue, Suite 250  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306-1546

COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: DOS  
SOFTWARE: FastSeq for Windows Version 2.0  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/496,847  
Filing Date: 27-JUN-1995  
CLASSIFICATION: 514

ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.31  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 650-324-0880  
TELEFAX: 650-324-0960

INFORMATION FOR SEQ ID NO: 6:

SEQUENCE CHARACTERISTICS:  
LENGTH: 24 amino acids  
TYPE: amino acid  
TOPOLOGY: linear

MOLECULE TYPE: protein  
HYPOTHETICAL: NO

ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: SVIA/SNX-157, FIGURE 1

FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 7

OTHER INFORMATION: /note= "where X is hydroxyproline"

US-08-496-847-6

Query Match 98.6%; Score 138; DB 1; Length 24;  
Best Local Similarity 100.0%; Pred. No. 1.3e-09;  
Matches 24; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

## RESULT 4

US-08-742-774-6  
Sequence 6, Application US/08742774  
Patent No. 5824645

GENERAL INFORMATION:  
APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:  
ADDRESS: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.25  
CURRENT APPLICATION NUMBER: US/08/742,774  
FILING DATE: 03-JUL-1996  
CLASSIFICATION:  
PRIORITY APPLICATION DATA:  
APPLICATION NUMBER: 08/675,354  
FILING DATE: 03-JUL-1996  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 1993-APR-15  
APPLICATION NUMBER: US 07/814,759  
FILING DATE: 30-DEC-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 6:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 24 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: SVIA/SNX-157, FIGURE 1  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 7  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-08-742-774-6

Query Match 98.6%; Score 138; DB 2; Length 24;  
Best Local Similarity 100.0%; Pred. No. 1.3e-09;  
Matches 24; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CRSSGSGCVTSICCGRCYRGKCT 24  
DB 1 CRSSGSGCVTSICCGRCYRGKCT 24

RESULT 5  
US-08-675-354-6  
Sequence 6, Application US/08675354  
Patent No. 5859186  
GENERAL INFORMATION:  
APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P

TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:  
ADDRESS: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.25  
CURRENT APPLICATION NUMBER: US/08/675,354  
FILING DATE: 03-JUL-1996  
CLASSIFICATION: 530  
PRIORITY APPLICATION DATA:  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 1993-APR-15  
APPLICATION NUMBER: US 07/814,759  
FILING DATE: 30-DEC-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 6:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 24 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: SVIA/SNX-157, FIGURE 1  
FEATURE:  
NAME/KEY: Modified-site  
LOCATION: 7  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-08-675-354-6  
Query Match 98.6%; Score 138; DB 2; Length 24;  
Best Local Similarity 100.0%; Pred. No. 1.3e-09;  
Matches 24; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CRSSGSGCVTSICCGRCYRGKCT 24  
DB 1 CRSSGSGCVTSICCGRCYRGKCT 24  
RESULT 6  
US-08-965-918-6  
Sequence 6, Application US/08965918  
Patent No. 5891849  
GENERAL INFORMATION:  
APPLICANT: Amstutz, Gary A.  
APPLICANT: Bowersox, Stephen S.  
APPLICANT: Gohil, Kishor Chandra  
APPLICANT: Adriaenssens, Peter I.  
APPLICANT: Kristipati, Ramasharma  
TITLE OF INVENTION: METHODS AND FORMULATIONS FOR PREVENTING  
PROGRESSION OF NEUROPATHIC PAIN  
NUMBER OF SEQUENCES: 36  
CORRESPONDENCE ADDRESS:  
ADDRESS: Dehlinger & Associates  
STREET: 350 Cambridge Avenue, Suite 250  
CITY: Palo Alto  
STATE: CA

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; COUNTRY: US
; ZIP: 94306-1546
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette
; COMPUTER: IBM Compatible
; OPERATING SYSTEM: DOS
; SOFTWARE: FastSeq for Windows Version 2.0
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/965,918
; FILING DATE: 07-NOV-1997
; CLASSIFICATION: 514
; ATTORNEY/AGENT INFORMATION:
; NAME: Mohr, Judy M.
; REGISTRATION NUMBER: 38,563
; REFERENCE/DOCKET NUMBER: 5865-0009.34
; TELEPHONE: 650-324-0980
; TELEFAX: 650-324-0960
; INFORMATION FOR SEQ ID NO: 6:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 24 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: SVIA/SNX-157, FIGURE 1
; FEATURE:
; NAME/KEY: Modified-site
; LOCATION: 7
; OTHER INFORMATION: /note= "where X is hydroxyproline"
; US-08-965-918-6
;
; Query Match 98.6%; Score 138; DB 2; Length 24;
; Best Local Similarity 100.0%; Pred. No. 1.3e-09;
; Matches 24; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
;
; QY 1 CRSSGXCXGVTSCGRCYRGKCT 24
; | | | | | | | | | | | | | | | | | |
; DB 1 CRSSGXCXGVTSCGRCYRGKCT 24
;
; RESULT 7
; US-09-039-168-6
; Sequence 6, Application US/09039168
; Patent No. 5965534
; GENERAL INFORMATION:
; APPLICANT: Pang, Iok-Hou; Kapin, Michael and Hellberg,
; APPLICANT: Mark
; TITLE OF INVENTION: The Use of w-Conotoxin Analogs For
; TREATING RETINAL AND OPTIC NERVE HEAD DAMAGE
; NUMBER OF INVENTIONS: 7
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Alcon Laboratories, Inc.
; STREET: 6201 South Freeway, Patent Legal
; CITY: Fort Worth
; STATE: Texas
; COUNTRY: USA
; ZIP: 76134-2099
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.25" floppy disk
; COMPUTER: Compaq Deskpro XE 560
; OPERATING SYSTEM: Microsoft Windows for Workgroups,
; OPERATING SYSTEM: Version 3.11
; SOFTWARE: Microsoft Word 6.0
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/039,168
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 08/562,142
; FILING DATE: November 22, 1995
; ATTORNEY/AGENT INFORMATION:

```

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; NAME: MAYO, MICHAEL C.
; REGISTRATION NUMBER: 38,545
; REFERENCE/DOCKET NUMBER: 1462
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (817) 551-4321
; TELEFAX: (817) 551-4610
; INFORMATION FOR SEQ ID NO: 6:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 24 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: unknown
; MOLECULE TYPE:
; DESCRIPTION: peptide
; HYPOTHETICAL: NO
; ANTI-SENSE: NO
; US-09-039-168-6
;
; Query Match 98.6%; Score 138; DB 2; Length 24;
; Best Local Similarity 100.0%; Pred. No. 1.3e-09;
; Matches 24; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
;
; QY 1 CRSSGXCXGVTSCGRCYRGKCT 24
; | | | | | | | | | | | | | | | | | |
; DB 1 CRSSGXCXGVTSCGRCYRGKCT 24
;
; RESULT 8
; US-09-138-439-6
; Sequence 6, Application US/09138439
; Patent No. 5994305
; GENERAL INFORMATION:
; APPLICANT: JUSTICE, ALAN
; APPLICANT: SINGH, TEJINDER
; APPLICANT: GOHIL, KISHOR C
; APPLICANT: VALENTINO, KAREN L
; APPLICANT: MILJANICH, GEORGE P
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND
; ENHANCING OPIATE ANALGESIA
; NUMBER OF INVENTIONS: 34
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Law Offices of Peter Dehlinger
; STREET: 350 Cambridge Avenue, Suite 300
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/138,439
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US/08/049,794
; FILING DATE: 1993-04-15
; APPLICATION NUMBER: US 07/814,759
; FILING DATE: 30-DEC-1991
; ATTORNEY/AGENT INFORMATION:
; NAME: Stratford, Carol A.
; REGISTRATION NUMBER: 34,444
; REFERENCE/DOCKET NUMBER: 5865-0009.30
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (415) 324-0880
; TELEFAX: (415) 324-0960
; INFORMATION FOR SEQ ID NO: 6:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 24 amino acids
; TYPE: amino acid
; TOPOLOGY: linear

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Query Match

RESULT 11  
US-09-392-979A-6

Sequence 6, Application US/09392979A  
Patent No. 6136786  
GENERAL INFORMATION:  
APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:  
ADDRESS: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/09/392,979A  
FILING DATE:  
CLASSIFICATION:  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 1993-04-15  
APPLICATION NUMBER: US 07/814,759  
FILING DATE: 30-DEC-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 6:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 24 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: SVIA/SNX-157, FIGURE 1  
NAME/KEY: Modified-site  
LOCATION: 7  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-09-392-979A-6

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Best Local Similarity 100.0%; Pred. No. 1.3e-09; Mismatches 0; Indels 0; Gaps 0;  
Matches 24; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CRSSGSXCGVTSICGRCYRGKCT 24  
DB 1 CRSSGSXCGVTSICGRCYRGKCT 24

RESULT 12  
5189020-6  
Patent No. 5189020  
APPLICANT: Miljanich, George P.; Bitner, Robert S.; Bowersox,  
Stephen S.; Fox, James A.; Valentino, Karen L.; Yamashiro, Donald  
H.; Tsubokawa, Makoto  
TITLE OF INVENTION: METHOD OF REDUCING NEURONAL DAMAGE USING  
OMEGA CONOTOXIN PEPTIDES  
NUMBER OF SEQUENCES: 29  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/561,766  
FILING DATE: 02-AUG-1990  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 440,094  
FILING DATE: 22-NOV-1989  
SEQ ID NO: 6:  
LENGTH: 24  
5189020-6

Sequence 6, Application US/07/561,766  
Patent No. 5189020  
GENERAL INFORMATION:  
APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:  
ADDRESS: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/09/392,979A  
FILING DATE:  
CLASSIFICATION:  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 1993-04-15  
APPLICATION NUMBER: US 07/814,759  
FILING DATE: 30-DEC-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 6:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 24 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: SVIA/SNX-157, FIGURE 1  
NAME/KEY: Modified-site  
LOCATION: 7  
OTHER INFORMATION: /note= "where X is hydroxyproline"  
US-09-392-979A-6

Query Match 98.6%; Score 138; DB 6; Length 24;  
Best Local Similarity 100.0%; Pred. No. 1.3e-09; Mismatches 0; Indels 0; Gaps 0;  
Matches 24; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CRSSGSXCGVTSICGRCYRGKCT 24  
DB 1 CRSSGSXCGVTSICGRCYRGKCT 24

RESULT 13  
5424218-6  
Patent No. 5424218  
APPLICANT: Miljanich, George P.; Bitner, Robert S.; Bowersox,  
Stephen S.; Fox, James A.; Valentino, Karen L.; Yamashiro, Donald H.  
TITLE OF INVENTION: SCREENING METHOD FOR NEUROPROTECTIVE COMPOUNDS  
NUMBER OF SEQUENCES: 21  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/147,714  
FILING DATE: 04-NOV-1993  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 855,269  
FILING DATE: 23-MAR-1992  
APPLICATION NUMBER: 561,766  
FILING DATE: 02-AUG-1990  
APPLICATION NUMBER: 440,094  
FILING DATE: 22-NOV-1989  
SEQ ID NO: 6:  
LENGTH: 24  
5424218-6

Query Match 98.6%; Score 138; DB 6; Length 24;  
Best Local Similarity 100.0%; Pred. No. 1.3e-09; Mismatches 0; Indels 0; Gaps 0;  
Matches 24; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CRSSGSXCGVTSICGRCYRGKCT 24  
DB 1 CRSSGSXCGVTSICGRCYRGKCT 24

RESULT 14  
5189020-6  
Patent No. 5189020  
APPLICANT: Miljanich, George P.; Bitner, Robert S.; Bowersox,  
Stephen S.; Fox, James A.; Valentino, Karen L.; Yamashiro, Donald  
H.; Tsubokawa, Makoto  
TITLE OF INVENTION: METHOD OF REDUCING NEURONAL DAMAGE USING  
OMEGA CONOTOXIN PEPTIDES  
NUMBER OF SEQUENCES: 29  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/561,766  
FILING DATE: 02-AUG-1990  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 440,094  
FILING DATE: 22-NOV-1989  
SEQ ID NO: 6:  
LENGTH: 24  
5189020-6

Query Match 98.6%; Score 138; DB 6; Length 24;  
Best Local Similarity 100.0%; Pred. No. 1.3e-09; Mismatches 0; Indels 0; Gaps 0;  
Matches 24; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
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DB 1 CRSSGSXCGVTSICGRCYRGKCT 24

Db 1 CRSSGXCXGVTSCCGCYRGKCT 24

RESULT 15  
5424218-6  
Patent No. 5424218  
APPLICANT: MILJANICH, GEORGE P.; BITNER, ROBERT S.; BOWERSOX,  
STEPHEN S.; FOX, JAMES A.; VALENTINO, KAREN L.; YAMASHIRO, DONALD H.  
TITLE OF INVENTION: SCREENING METHOD FOR NEUROPROTECTIVE COMPOUNDS  
NUMBER OF SEQUENCES: 21  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/147,714  
FILING DATE: 04-NOV-1993  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 855,269  
FILING DATE: 23-MAR-1992  
APPLICATION NUMBER: 561,766  
FILING DATE: 02-AUG-1990  
APPLICATION NUMBER: 440,094  
FILING DATE: 22-NOV-1989  
SEQ ID NO: 6:  
LENGTH: 24  
5424218-6

Query Match 98.6%; Score 138; DB 6; Length 24;  
Best Local Similarity 100.0%; Pred. No. 1.3e-09;  
Matches 24; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CRSSGXCXGVTSCCGCYRGKCT 24  
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Db 1 CRSSGXCXGVTSCCGCYRGKCT 24

Search completed: March 23, 2005, 00:20:49  
Job time : 20.4059 secs

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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 23:46:47 ; Search time 54.7327 Seconds  
(without alignments)  
144.941 Million cell updates/sec

Title: US-09-787-082A-13  
Perfect score: 140  
Sequence: 1 CRSSGSXCGVTSICCGRCYRGKCT 24

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1401741 seqs, 330541175 residues

Total number of hits satisfying chosen parameters: 1401741

Minimum DB seq length: 0  
Maximum Match 100%  
Listing first 45 summaries

Post-processing: Minimum Match 0%

- Database : Published Applications AA.\*
- 1: /cgn2\_6/ptodata/2/pubpaa/US07\_PUBCOMB.pep.\*
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  - 3: /cgn2\_6/ptodata/2/pubpaa/US06\_NEW\_PUB.pep.\*
  - 4: /cgn2\_6/ptodata/2/pubpaa/US06\_PUBCOMB.pep.\*
  - 5: /cgn2\_6/ptodata/2/pubpaa/US07\_NEW\_PUB.pep.\*
  - 6: /cgn2\_6/ptodata/2/pubpaa/PCTUS\_PUBCOMB.pep.\*
  - 7: /cgn2\_6/ptodata/2/pubpaa/US08\_NEW\_PUB.pep.\*
  - 8: /cgn2\_6/ptodata/2/pubpaa/US08\_PUBCOMB.pep.\*
  - 9: /cgn2\_6/ptodata/2/pubpaa/US09A\_PUBCOMB.pep.\*
  - 10: /cgn2\_6/ptodata/2/pubpaa/US09B\_PUBCOMB.pep.\*
  - 11: /cgn2\_6/ptodata/2/pubpaa/US09C\_PUBCOMB.pep.\*
  - 12: /cgn2\_6/ptodata/2/pubpaa/US09\_NEW\_PUB.pep.\*
  - 13: /cgn2\_6/ptodata/2/pubpaa/US10A\_PUBCOMB.pep.\*
  - 14: /cgn2\_6/ptodata/2/pubpaa/US10B\_PUBCOMB.pep.\*
  - 15: /cgn2\_6/ptodata/2/pubpaa/US10C\_PUBCOMB.pep.\*
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  - 19: /cgn2\_6/ptodata/2/pubpaa/US60\_NEW\_PUB.pep.\*
  - 20: /cgn2\_6/ptodata/2/pubpaa/US60\_PUBCOMB.pep.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	137	97.9	24	10	US-09-910-082A-266
2	137	97.9	24	16	US-10-765-926-266
3	130	92.9	24	10	US-09-910-082A-267
4	130	92.9	24	16	US-10-765-926-267
5	97	69.3	24	10	US-09-910-082A-274
6	97	69.3	24	16	US-10-765-926-274
7	96	68.6	24	10	US-09-910-082A-404
8	96	68.6	24	16	US-10-765-926-404
9	96	68.6	71	16	US-09-910-082A-273
10	96	68.6	71	16	US-10-765-926-273
11	76	54.3	27	10	US-09-910-082A-134
12	76	54.3	27	10	US-09-910-082A-185
13	76	54.3	27	16	US-10-765-926-134

14	76	54.3	27	16	US-10-765-926-185	Sequence 185, App
15	73	52.1	27	10	US-09-910-082A-355	Sequence 355, App
16	73	52.1	27	10	US-09-910-082A-366	Sequence 366, App
17	73	52.1	27	16	US-10-765-926-355	Sequence 355, App
18	73	52.1	27	16	US-10-765-926-366	Sequence 366, App
19	73	52.1	54	10	US-09-910-082A-133	Sequence 133, App
20	73	52.1	54	16	US-10-765-926-133	Sequence 133, App
21	73	52.1	72	10	US-09-910-082A-184	Sequence 184, App
22	73	52.1	72	16	US-10-765-926-184	Sequence 184, App
23	68	48.6	27	10	US-09-910-082A-161	Sequence 161, App
24	68	48.6	27	16	US-10-765-926-161	Sequence 161, App
25	68	48.6	2290	14	US-10-123-155-323	Sequence 323, App
26	68	48.6	2290	14	US-10-146-731-323	Sequence 323, App
27	68	48.6	2290	14	US-10-140-472-323	Sequence 323, App
28	68	48.6	2290	14	US-10-141-761-323	Sequence 323, App
29	68	48.6	2290	14	US-10-142-885-323	Sequence 323, App
30	68	48.6	2290	14	US-10-158-790-323	Sequence 323, App
31	68	48.6	2290	15	US-10-137-871-323	Sequence 323, App
32	68	48.6	2290	15	US-10-140-923-323	Sequence 323, App
33	68	48.6	2290	15	US-10-141-756-323	Sequence 323, App
34	68	48.6	2290	15	US-10-140-805-323	Sequence 323, App
35	68	48.6	2290	15	US-10-140-864-323	Sequence 323, App
36	68	48.6	2290	15	US-10-140-864-323	Sequence 323, App
37	68	48.6	2290	15	US-10-142-426-323	Sequence 323, App
38	67.5	48.2	31	10	US-09-910-082A-54	Sequence 54, Appl
39	67.5	48.2	31	16	US-10-765-926-54	Sequence 54, Appl
40	67.5	48.2	35346	17	US-10-874-049-2	Sequence 2, Appli
41	67	47.9	2099	14	US-10-123-155-103	Sequence 103, App
42	67	47.9	2099	14	US-10-146-731-103	Sequence 103, App
43	67	47.9	2099	14	US-10-140-472-103	Sequence 103, App
44	67	47.9	2099	14	US-10-141-761-103	Sequence 103, App
45	67	47.9	2099	14	US-10-142-885-103	Sequence 103, App

ALIGNMENTS

RESULT 1  
US-09-910-082A-266  
; Sequence 266, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 266  
; LENGTH: 24  
; TYPE: PRT  
; ORGANISM: Conus striatus  
US-09-910-082A-266

Query Match 97.9%; Score 137; DB 10; Length 24;  
Best Local Similarity 95.8%; Pred. No. 7, 3e-09;  
Matches 23; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
QY 1 CRSSGSXCGVTSICCGRCYRGKCT 24

Db 1 CRSSGSPCGVTSICCGRCYRGKCT 24  
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## RESULT 2

US-10-765-926-266  
; Sequence 266, Application US/10765926  
; Publication No. US20040132663A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/10/765,926  
; CURRENT FILING DATE: 2004-01-29  
; PRIOR APPLICATION NUMBER: US 09/910,082  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 266  
; LENGTH: 24  
; TYPE: PRT  
; ORGANISM: Conus striatus  
US-10-765-926-266

Query Match 97.9%; Score 137; DB 16; Length 24;  
Best Local Similarity 95.8%; Pred. No. 7.3e-09;  
Matches 23; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Oy 1 CRSSGSPCGVTSICCGRCYRGKCT 24  
|||||

Db 1 CRSSGSPCGVTSICCGRCYRGKCT 24  
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## RESULT 3

US-09-910-082A-267  
; Sequence 267, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 267  
; LENGTH: 24

Query Match 97.9%; Score 137; DB 16; Length 24;

Best Local Similarity 95.8%; Pred. No. 7.3e-09;  
Matches 23; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Oy 1 CRSSGSPCGVTSICCGRCYRGKCT 24  
|||||

Db 1 CRSSGSPCGVTSICCGRCYRGKCT 24  
|||||

; TYPE: PRT  
; ORGANISM: Conus striatus  
; FEATURE:  
; NAME/KEY: PEPTIDE  
; LOCATION: (1)..(24)  
; OTHER INFORMATION: Xaa at residue 7 is Pro or Hyp; Xaa at residue 19 is Tyr, 125I-Ty  
; OTHER INFORMATION: r, mono-iodo-Tyr, di-iodo-Tyr, O-sulpho-Tyr or O-phospho-Tyr  
US-09-910-082A-267

Query Match 92.9%; Score 130; DB 10; Length 24;  
Best Local Similarity 95.8%; Pred. No. 4.5e-08;  
Matches 23; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Db 1 CRSSGSPCGVTSICCGRCYRGKCT 24  
|||||

## RESULT 4

US-10-765-926-267  
; Sequence 267, Application US/10765926  
; Publication No. US20040132663A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/10/765,926  
; CURRENT FILING DATE: 2004-01-29  
; PRIOR APPLICATION NUMBER: US 09/910,082  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 267  
; LENGTH: 24  
; TYPE: PRT  
; ORGANISM: Conus striatus  
; FEATURE:  
; NAME/KEY: PEPTIDE  
; LOCATION: (1)..(24)  
; OTHER INFORMATION: Xaa at residue 7 is Pro or Hyp; Xaa at residue 19  
; OTHER INFORMATION: is Tyr, 125I-Tyr, mono-iodo-Tyr, di-iodo-Tyr,  
; OTHER INFORMATION: O-sulpho-Tyr or O-phospho-Tyr  
US-10-765-926-267

Query Match 92.9%; Score 130; DB 16; Length 24;  
Best Local Similarity 95.8%; Pred. No. 4.5e-08;  
Matches 23; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Oy 1 CRSSGSPCGVTSICCGRCYRGKCT 24  
|||||

Db 1 CRSSGSPCGVTSICCGRCYRGKCT 24  
|||||

## RESULT 5

US-09-910-082A-274  
; Sequence 274, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.

APPLICANT: Olivera, Baldomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Watkins, Maren  
APPLICANT: Garrett, James E.  
APPLICANT: Shon, Ki-Joon  
APPLICANT: Jacobsen, Richard  
APPLICANT: Jones, Robert M.  
APPLICANT: Cartier, G. Edward  
TITLE OF INVENTION: Omega-Conopeptides  
FILE REFERENCE: 2314-241  
CURRENT APPLICATION NUMBER: US/09/910,082A  
PRIOR FILING DATE: 2001-07-23  
PRIOR APPLICATION NUMBER: US 60/219,616  
PRIOR FILING DATE: 2000-07-21  
PRIOR APPLICATION NUMBER: US 60/265,888  
PRIOR FILING DATE: 2001-02-05  
NUMBER OF SEQ ID NOS: 413  
SOFTWARE: PatentIn version 3.0  
SEQ ID NO 274  
LENGTH: 24  
TYPE: PRT  
ORGANISM: Conus striolatus  
FEATURE:  
NAME/KEY: PEPTIDE  
LOCATION: (1)-(24)  
OTHER INFORMATION: Xaa at residue 3 is Pro or Hyp  
US-09-910-082A-274

Query Match 69.3%; Score 97; DB 10; Length 24;  
Best Local Similarity 66.7%; Pred. No. 0.00024;  
Matches 16; Conservative 1; Mismatches 7; Indels 0; Gaps 0;

QY 1 CRSSGSXCGVTSICCGRCYRGKCT 24  
||| ||| ||| ||| ||| ||| :||  
Db 1 CRXSGSNCGNISICCGRCVNRRT 24

RESULT 6  
US-10-765-926-274  
Sequence 274, Application US/10765926  
Publication No. US20040132663A1  
GENERAL INFORMATION:  
APPLICANT: University of Utah Research Foundation  
APPLICANT: Cognetix, Inc.  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Watkins, Maren  
APPLICANT: Garrett, James E.  
APPLICANT: Shon, Ki-Joon  
APPLICANT: Jacobsen, Richard  
APPLICANT: Jones, Robert M.  
APPLICANT: Cartier, G. Edward  
TITLE OF INVENTION: Omega-Conopeptides  
FILE REFERENCE: 2314-241  
CURRENT APPLICATION NUMBER: US/10/765,926  
CURRENT FILING DATE: 2004-01-29  
PRIOR APPLICATION NUMBER: US 09/910,082  
PRIOR FILING DATE: 2001-07-23  
PRIOR APPLICATION NUMBER: US 60/219,616  
PRIOR FILING DATE: 2000-07-21  
PRIOR APPLICATION NUMBER: US 60/265,888  
PRIOR FILING DATE: 2001-02-05  
NUMBER OF SEQ ID NOS: 413  
SOFTWARE: PatentIn version 3.0  
SEQ ID NO 274  
LENGTH: 24  
TYPE: PRT  
ORGANISM: Conus striolatus  
FEATURE:  
NAME/KEY: PEPTIDE  
LOCATION: (1)-(24)  
OTHER INFORMATION: Xaa at residue 3 is Pro or Hyp  
US-10-765-926-274

Query Match 69.3%; Score 97; DB 16; Length 24;  
Best Local Similarity 66.7%; Pred. No. 0.00024;  
Matches 16; Conservative 1; Mismatches 7; Indels 0; Gaps 0;

QY 1 CRSSGSXCGVTSICCGRCYRGKCT 24  
||| ||| ||| ||| ||| ||| :||  
Db 1 CRXSGSNCGNISICCGRCVNRRT 24

RESULT 7  
US-09-910-082A-404  
Sequence 404, Application US/09910082A  
Publication No. US20030119731A1  
GENERAL INFORMATION:  
APPLICANT: University of Utah Research Foundation  
APPLICANT: Cognetix, Inc.  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Watkins, Maren  
APPLICANT: Garrett, James E.  
APPLICANT: Shon, Ki-Joon  
APPLICANT: Jacobsen, Richard  
APPLICANT: Jones, Robert M.  
APPLICANT: Cartier, G. Edward  
TITLE OF INVENTION: Omega-Conopeptides  
FILE REFERENCE: 2314-241  
CURRENT APPLICATION NUMBER: US/09/910,082A  
CURRENT FILING DATE: 2001-07-23  
PRIOR APPLICATION NUMBER: US 60/219,616  
PRIOR FILING DATE: 2000-07-21  
PRIOR APPLICATION NUMBER: US 60/265,888  
PRIOR FILING DATE: 2001-02-05  
NUMBER OF SEQ ID NOS: 413  
SOFTWARE: PatentIn version 3.0  
SEQ ID NO 404  
LENGTH: 24  
TYPE: PRT  
ORGANISM: Conus striolatus  
US-09-910-082A-404

Query Match 68.6%; Score 96; DB 10; Length 24;  
Best Local Similarity 66.7%; Pred. No. 0.00031;  
Matches 16; Conservative 1; Mismatches 7; Indels 0; Gaps 0;

QY 1 CRSSGSXCGVTSICCGRCYRGKCT 24  
||| ||| ||| ||| ||| ||| :||  
Db 1 CRPSGSNCGNISICCGRCVNRRT 24

RESULT 8  
US-10-765-926-404  
Sequence 404, Application US/10765926  
Publication No. US20040132663A1  
GENERAL INFORMATION:  
APPLICANT: University of Utah Research Foundation  
APPLICANT: Cognetix, Inc.  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Watkins, Maren  
APPLICANT: Garrett, James E.  
APPLICANT: Shon, Ki-Joon  
APPLICANT: Jacobsen, Richard  
APPLICANT: Jones, Robert M.  
APPLICANT: Cartier, G. Edward  
TITLE OF INVENTION: Omega-Conopeptides  
FILE REFERENCE: 2314-241  
CURRENT APPLICATION NUMBER: US/10/765,926  
CURRENT FILING DATE: 2004-01-29  
PRIOR APPLICATION NUMBER: US 09/910,082  
PRIOR FILING DATE: 2001-07-23  
PRIOR APPLICATION NUMBER: US 60/219,616  
PRIOR FILING DATE: 2000-07-21

; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 404  
; LENGTH: 24  
; TYPE: PRT  
; ORGANISM: Conus striolatus  
US-10-765-926-404

Query Match 68.6%; Score 96; DB 16; Length 24;  
Best Local Similarity 66.7%; Pred. No. 0.00031;  
Matches 16; Conservative 1; Mismatches 7; Indels 0; Gaps 0;

QY 1 CRSSGSCGVTSICGRCYRGKCT 24  
||| ||| ||| ||| ||| ||| ||| :||  
DB 1 CRPSGSCGNISICGRCVNRCT 24

## RESULT 9

US-09-910-082A-273  
; Sequence 273, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 273  
; LENGTH: 71  
; TYPE: PRT  
; ORGANISM: Conus striolatus  
US-09-910-082A-273

Query Match 68.6%; Score 96; DB 10; Length 71;  
Best Local Similarity 66.7%; Pred. No. 0.00074;  
Matches 16; Conservative 1; Mismatches 7; Indels 0; Gaps 0;

QY 1 CRSSGSCGVTSICGRCYRGKCT 24  
||| ||| ||| ||| ||| ||| ||| :||  
DB 48 CRPSGSCGNISICGRCVNRCT 71

## RESULT 10

US-10-765-926-273  
; Sequence 273, Application US/10765926  
; Publication No. US20040132663A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.

; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/10/765,926  
; PRIOR FILING DATE: 2004-01-29  
; PRIOR APPLICATION NUMBER: US 09/910,082  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 273  
; LENGTH: 71  
; TYPE: PRT  
; ORGANISM: Conus striolatus  
US-10-765-926-273

Query Match 68.6%; Score 96; DB 16; Length 71;  
Best Local Similarity 66.7%; Pred. No. 0.00074;  
Matches 16; Conservative 1; Mismatches 7; Indels 0; Gaps 0;

QY 1 CRSSGSCGVTSICGRCYRGKCT 24  
||| ||| ||| ||| ||| ||| ||| :||  
DB 48 CRPSGSCGNISICGRCVNRCT 71

## RESULT 11

US-09-910-082A-134  
; Sequence 134, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 134  
; LENGTH: 27  
; TYPE: PRT  
; ORGANISM: Conus ermineus  
; FEATURE:  
; NAME/KEY: PEPTIDE  
; LOCATION: (1)..(27)  
; OTHER INFORMATION: Xaa at 8 residue is Pro or Hyp; Xaa at residue 3 is Trp or  
; OTHER INFORMATION: Bromo Trp  
US-09-910-082A-134

Query Match 54.3%; Score 76; DB 10; Length 27;  
Best Local Similarity 56.0%; Pred. No. 0.062;  
Matches 14; Conservative 3; Mismatches 6; Indels 2; Gaps 1;

QY 1 CRSSGSCGVTSICGRC--YRGKC 23  
||| ||| ||| ||| ||| ||| :||  
DB 2 CXSGTSCGTDSLCCGCVNRKSC 26



```
RESULT 12
US-09-910-082A-185
; Sequence 185, Application US/09910082A
; Publication No. US20030119731A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 185
; LENGTH: 27
; TYPE: PRT
; ORGANISM: Conus lynceus
; FEATURE:
; NAME/KEY: PEPTIDE
; LOCATION: (1)..(27)
; OTHER INFORMATION: Xaa at residue 8 is Pro or Hyp; Xaa at residue 3 is Trp or
; OTHER INFORMATION: Bromo Trp
US-09-910-082A-185

Query Match          54.3%; Score 76; DB 10; Length 27;
Best Local Similarity 56.0%; Pred. No. 0.062;
Matches 14; Conservative 3; Mismatches 6; Indels 2; Gaps 1;

QY 1 CRSSGSXCGVTSICCGRC--YRGKC 23
   |||||:||||:||||:
Db 2 CXSSGTXCCTDSLCCGCGNVSKSC 26
   |||||:||||:||||:

RESULT 13
US-10-765-926-134
; Sequence 134, Application US/10765926
; Publication No. US20040132663A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT FILING DATE: 2004-01-29
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 134
; LENGTH: 27
; TYPE: PRT
; ORGANISM: Conus lynceus
; FEATURE:
; NAME/KEY: PEPTIDE
; LOCATION: (1)..(27)
; OTHER INFORMATION: Xaa at residue 8 is Pro or Hyp; Xaa at residue 3 is Trp or Bromo-Trp
US-10-765-926-134

Query Match          54.3%; Score 76; DB 10; Length 27;
Best Local Similarity 56.0%; Pred. No. 0.062;
Matches 14; Conservative 3; Mismatches 6; Indels 2; Gaps 1;

QY 1 CRSSGSXCGVTSICCGRC--YRGKC 23
   |||||:||||:||||:
Db 2 CXSSGTXCCTDSLCCGCGNVSKSC 26
   |||||:||||:||||:

RESULT 14
US-10-765-926-185
; Sequence 185, Application US/10765926
; Publication No. US20040132663A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
; APPLICANT: Olivera, Baldomero M.
; APPLICANT: McIntosh, J. Michael
; APPLICANT: Watkins, Maren
; APPLICANT: Garrett, James E.
; APPLICANT: Shon, Ki-Joon
; APPLICANT: Jacobsen, Richard
; APPLICANT: Jones, Robert M.
; APPLICANT: Cartier, G. Edward
; TITLE OF INVENTION: Omega-Conopeptides
; FILE REFERENCE: 2314-241
; CURRENT APPLICATION NUMBER: US/10/765,926
; CURRENT FILING DATE: 2004-01-29
; PRIOR APPLICATION NUMBER: US 09/910,082
; PRIOR FILING DATE: 2001-07-23
; PRIOR APPLICATION NUMBER: US 60/219,616
; PRIOR FILING DATE: 2000-07-21
; PRIOR APPLICATION NUMBER: US 60/265,888
; PRIOR FILING DATE: 2001-02-05
; NUMBER OF SEQ ID NOS: 413
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 185
; LENGTH: 27
; TYPE: PRT
; ORGANISM: Conus lynceus
; FEATURE:
; NAME/KEY: PEPTIDE
; LOCATION: (1)..(27)
; OTHER INFORMATION: Xaa at residue 8 is Pro or Hyp; Xaa at residue 3 is Trp or Bromo-Trp
US-10-765-926-185

Query Match          54.3%; Score 76; DB 16; Length 27;
Best Local Similarity 56.0%; Pred. No. 0.062;
Matches 14; Conservative 3; Mismatches 6; Indels 2; Gaps 1;

QY 1 CRSSGSXCGVTSICCGRC--YRGKC 23
   |||||:||||:||||:
Db 2 CXSSGTXCCTDSLCCGCGNVSKSC 26
   |||||:||||:||||:

RESULT 15
US-09-910-082A-355
; Sequence 355, Application US/09910082A
; Publication No. US20030119731A1
; GENERAL INFORMATION:
; APPLICANT: University of Utah Research Foundation
; APPLICANT: Cognetix, Inc.
```

; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 355  
; LENGTH: 27  
; TYPE: PRT  
; ORGANISM: Conus ermineus  
US-09-910-082A-355

Query Match 52.1%; Score 73; DB 10; Length 27;  
Best Local Similarity 52.0%; Pred.No. 0.14;  
Matches 13; Conservative 3; Mismatches 7; Indels 2; Gaps 1;  
Qy 1 CRSSGSXCGVTSICCGRC--YRGKC 23  
Db 2 CWSSTPGCTDSLCCGCGCNVSKKC 26

Search completed: March 23, 2005, 00:35:03  
Job time : 55.8041 secs





A:Title: A new Conus peptide ligand for Ca channel subtypes.

A:Reference number: A58537; MUID:94150815; PMID:8107968

A:Accession: A58537

A:Molecule type: mRNA

A:Residues: 1-29 <MON>

A:Cross-references: UNIPROT:Q26350; GB:S69322; NID:G545399; PIDN:AAB29902.1; PID:G545400

A>Note: the predicted peptide was chemically synthesized and alternative disulfide bonds

C:Superfamily: omega-conotoxin

C:Keywords: toxin; venom

F:4-23/Product: omega-conotoxin MVID #status predicted <MAT>

F:4-19,11-23,18-28/Disulfide bonds: #status predicted

Query Match 40.7%; Score 57; DB 2; Length 29;

Best Local Similarity 40.0%; Pred. No. 2.4;

Matches 10; Conservative 4; Mismatches 9; Indels 2; Gaps 1;

QY 1 CRSSGSCGWT--SICGRCYRGKC 23

DB 4 CQGRGASCKTWNCCSGSCNRGRC 28

RESULT 8

D84481

C:Species: Arabidopsis thaliana (mouse-ear cress)

C>Date: 02-Feb-2001 #sequence\_revision 02-Feb-2001 #text\_change 09-Jul-2004

C:Accession: D84481

M.; Koo, H.; Kaul, S.; Rounsley, S.D.; Shea, T.P.; Benito, M.I.; Town, C.Y.;

Shen, M.; VanAken, S.E.; Umayam, L.; Tallon, L.

W.; Nierman, W.C.; White, O.; Eisen, J.A.; Salzberg, S.L.; Fraser, C.M.; Venter, J.

Nature 402, 761-768, 1999

A:Title: Sequence and analysis of chromosome 2 of the plant Arabidopsis thaliana.

A:Reference number: A84420; MUID:20083487; PMID:10617197

A:Accession: D84481

A:Status: preliminary

A:Molecule type: DNA

A:Residues: 1-1413 <STO>

A:Cross-references: UNIPROT:Q9ZVW0; GB:AE002093; NID:G3779026; PIDN:AAC67205.1; GSPDB:GN

C:Genetics:

A:Gene: At2g07010

A:Map position: 2

C:Superfamily: retrovirus-related polyprotein

Query Match 40.7%; Score 57; DB 2; Length 1413;

Best Local Similarity 52.4%; Pred. No. 25;

Matches 11; Conservative 2; Mismatches 8; Indels 0; Gaps 0;

QY 4 SGSCGWT--SICGRCYRGKCT 24

DB 532 SGSCGWSRSRSCDVCVFRKQT 552

RESULT 9

NTXN6G

omega-conotoxin GVIB precursor [validated] - cone shell (Conus geographus)

N:Alternate names: shaker peptide GVIB

N:Contains: omega-conotoxin GVIA; omega-conotoxin GVIC

C:Species: Conus geographus (geography cone)

C>Date: 25-Feb-1985 #sequence\_revision 23-Mar-1995 #text\_change 09-Jul-2004

C:Accession: A44006; A50133; E60133; A01785

C:Colledge, C.J.; Hunsperger, J.P.; Imperial, J.S.; Hillyard, D.R.

Toxicon 30, 1111-1116, 1992

A:Title: Precursor structure of omega-conotoxin GVIA determined from a cDNA clone.

A:Reference number: A44006; MUID:93069266; PMID:1440648

A:Accession: A44006

A:Molecule type: mRNA

A:Residues: 1-73 <COL>

A:Cross-references: UNIPROT:P01522; GB:M84612; NID:G156520; PIDN:AAA81590.1; PID:gi07039

A:Experimental source: venom duct

R:Olivera, B.M.; Gray, W.R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Santo

Science 230, 1338-1343, 1985

A:Title: Peptide neurotoxins from fish-hunting cone snails.

A:Reference number: A43620; MUID:86070213; PMID:4071055

A:Accession: A60133

A:Molecule type: protein

A:Residues: 46-73 <OLI>

A:Accession: B60133

A:Molecule type: protein

A:Residues: 46-71 <OL2>

R:Olivera, B.M.; McIntosh, J.M.; Cruz, L.J.; Luque, F.A.; Gray, W.R.

Biochemistry 23, 5087-5090, 1984

A:Title: Purification and sequence of a presynaptic peptide toxin from Conus geographus

A:Reference number: A01785; MUID:85072796; PMID:6509012

A:Accession: A01785

A:Molecule type: protein

A:Residues: 46-72 <OL3>

R:Nishiduchi, Y.; Kumagaya, K.; Noda, Y.; Watanabe, T.X.; Sakakibara, S.

Biopolymers 25, S61-S68, 1986

A:Title: Synthesis and secondary-structure determination of omega-conotoxin GVIA: a 27-pe

A:Reference number: A49017; MUID:87049928; PMID:3779030

A:Contents: annotation

A>Note: disulfide bonds determined and confirmed by chemical synthesis

R:Davis, J.H.; Bradley, E.K.; Miljanich, G.P.; Nadasdi, L.; Ramachandran, J.; Basus, V.J.

submitted to the Brookhaven Protein Data Bank, April 1993

A:Reference number: A51894; PDB:1OMC

A:Contents: annotation; conformation by (1)H-NMR, residues 46-72

R:Davis, J.H.; Bradley, E.K.; Miljanich, G.P.; Nadasdi, L.; Ramachandran, J.; Basus, V.J.

Biochemistry 32, 7396-7405, 1993

A:Title: Solution structure of omega-conotoxin GVIA using 2-D NMR spectroscopy and relax

A:Reference number: A58536; MUID:93332945; PMID:8338837

A:Contents: annotation; conformation by (1)H-NMR

R:Pallaghy, P.K.; Duggan, B.M.; Pennington, M.W.; Norton, R.S.

submitted to the Brookhaven Protein Data Bank, August 1993

A:Reference number: A51089; PDB:1CCO

A:Contents: annotation; conformation by (1)H-NMR, residues 46-72

C:Comment: There are several types of conotoxins: alpha, acting on postsynaptic membranes

neurotoxin.

C:Superfamily: omega-conotoxin

C:Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh

F:1-23/Domain: signal sequence #status predicted <SIG>

F:46-73/Product: omega-conotoxin GVIB #status predicted <PRO>

F:46-72/Product: omega-conotoxin GVIA #status experimental <MAT1>

F:46-71/Product: omega-conotoxin GVIC #status experimental <MAT2>

F:46-61,53-64,60-71/Disulfide bonds: #status experimental

F:49,55,66/Modified site: 4-hydroxyproline (Pro) #status experimental

F:72/Modified site: amidated carboxyl end (Tyr) (amide in mature form from following gly

Query Match 40.4%; Score 56.5; DB 1; Length 73;

Best Local Similarity 46.2%; Pred. No. 4.8;

Matches 12; Conservative 2; Mismatches 9; Indels 3; Gaps 2;

QY 1 CRSSGSCGVTSTI-CCGRC--YRGKC 23

DB 46 CKSPGSSCSPTSYNCCRSCNPTKRC 71

RESULT 10

Ti4348

probable chitinase (EC 3.2.1.14) EP3B/B6, class IV - carrot

C:Species: Daucus carota (carrot)

C>Date: 20-Sep-1999 #sequence\_revision 20-Sep-1999 #text\_change 09-Jul-2004

C:Accession: Ti4348

R:Kragh, K.; De Vries, S.C.

submitted to the EMBL Data Library, March 1996

A:Reference number: Z17995

A:Status: preliminary; translated from GB/EMBL/DBJ

A:Molecule type: mRNA

A:Residues: 1-266 <KRA>

A:Cross-references: UNIPROT:Q96411; EMBL:U52848; NID:g1549334; PID:g1549335

A:Experimental source: strain sg766 trophy

C:Genetics:

A>Note: EP3

C:Function:

C;Date: 28-Oct-1996 #sequence\_revision 13-Mar-1997 #text\_change 09-Jul-2004  
C;Accession: S65778  
R;Hanfrey, C.; Fife, M.; Buchanan-Wollaston, V.  
Plant Mol. Biol. 30, 597-609, 1996  
A;Title: Leaf senescence in *Brassica napus*: expression of genes encoding pathog  
A;Reference number: S65777; MUID:96189271; PMID:8605308  
A;Accession: S65778

A:Status: preliminary; nucleic acid sequence not shown

A:Molecule type: mRNA

A:Residues: 1-266 <HAN>

A:Cross-references: UNIPROT:Q43391; EMBL:U21848; NID:G722271; PIDN:AA01665.1; PID:G7222

A:Note: the sequence of residues 1-17 and the corresponding nucleotide sequence are not

C:Superfamily: lectin-related plant chitinase; hevein chitin-binding domain homology; pl

F:18-53/Domain: hevein chitin-binding domain homology <HCB>

F:64-266/Domain: plant chitinase homology <PCH>

Query Match 39.6%; Score 55.5; DB 2; Length 266;  
Best Local Similarity 45.8%; Pred. No. 14;  
Matches 11; Conservative 0; Mismatches 12; Indels 1; Gaps 1;

QY 1 CRSSGSXCGVTSICGR-CYRGKC 23

Db 27 CCSSAGYCGTTDAYCGEGCKGPC 50

Search completed: March 22, 2005, 22:54:18  
Job time : 14.4653 secs





GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:45:36 ; Search time 64.0792 Seconds  
(without alignments)  
191.792 Million cell updates/sec

Title: US-09-787-082A-13  
Perfect score: 140  
Sequence: 1 CRSSGSGCVTSICCGRCYRGKCT 24

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : UniProt 03: \*  
1: uniprot\_sprot: \*  
2: uniprot\_trembl: \*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match %	Length	ID	Description
1	137	97.9	67	2 Q9N604	Q9N604 conus stria
2	137	97.9	67	2 Q9NCU2	Q9NCU2 conus stria
3	137	97.9	67	2 Q9NCU3	Q9NCU3 conus stria
4	137	97.9	67	2 Q9NCU6	Q9NCU6 conus stria
5	137	97.9	72	1 CXOA CONST	P28880 conus stria
6	133	95.0	67	2 Q9NCU5	Q9NCU5 conus stria
7	132	94.3	72	1 CXOL CONST	Q9X214 conus stria
8	128	91.4	67	2 Q9NCU4	Q9NCU4 conus stria
9	123	87.9	72	1 CXO2 CONST	Q9X215 conus stria
10	75	53.6	67	2 Q6XE28	Q6XE28 conus ermin
11	66	47.1	72	2 Q9NCU8	Q9NCU8 conus stria
12	66	47.1	72	2 Q9NCU9	Q9NCU9 conus stria
13	66	47.1	77	1 CXO5 CONST	Q9X2K4 conus stria
14	65	46.4	66	2 Q9NCV6	Q9NCV6 conus catus
15	64	45.7	25	1 CXOB CONMA	P05485 conus magnus
16	62	44.3	167	2 Q8SA44	Q8SA44 brassica ju
17	61	43.6	44	1 PLTX PLETR	P34079 plectreurya
18	60	42.9	66	2 Q9N625	Q9N625 conus catus
19	60	42.9	66	2 Q9N628	Q9N628 conus catus
20	60	42.9	66	2 Q9NCW2	Q9NCW2 conus catus
21	60	42.9	71	1 CXOA CONCT	P58917 conus catus
22	60	42.9	102	2 Q6PA15	Q6PA15 mus musculus
23	60	42.9	102	2 Q9D7Q2	Q9D7Q2 mus musculus
24	59.5	42.5	610	2 Q9DGB9	Q9DGB9 crotalus at
25	58.5	41.8	610	2 Q8AW15	Q8AW15 agkistrodon
26	58	41.4	67	2 Q9N646	Q9N646 conus stria
27	58	41.4	67	2 Q9NCU7	Q9NCU7 conus stria
28	58	41.4	690	2 Q8CC33	Q8CC33 conus stria
29	58	41.4	726	1 NETA DROME	Q24567 drosophila
30	58	41.4	829	2 Q9RLV7	Q9RLV7 mus musculus
31	57.5	41.1	1042	2 P90974	P90974 caenorhabdi

32	57	40.7	29	1 CXOD CONMA	Q26350 conus magnus
33	57	40.7	49	2 Q23947	Q23947 drosophila
34	57	40.7	49	2 Q23948	Q23948 drosophila
35	57	40.7	65	1 MT PARLI	P80367 paracentrot
36	57	40.7	66	2 Q96625	Q96625 paracentrot
37	57	40.7	66	2 Q9N6F8	Q9N6F8 conus catus
38	57	40.7	66	2 Q9NCV9	Q9NCV9 conus catus
39	57	40.7	66	2 Q9NCW0	Q9NCW0 conus catus
40	57	40.7	574	2 Q7PFH4	Q7PFH4 anopheles g
41	57	40.7	832	2 O75077	O75077 homo sapien
42	57	40.7	1413	2 Q9LVO2	Q9LVO2 arabidopsis
43	57	40.7	1491	2 Q9LVO2	Q9LVO2 arabidopsis
44	56.5	40.4	73	1 CXO6 CONGE	P01522 conus geogr
45	56.5	40.4	101	2 Q6KGN2	Q6KGN2 bacterioph

ALIGNMENTS

RESULT 1  
Q9N604 PRELIMINARY; PRT; 67 AA.  
AC Q9N604;  
DT 01-OCT-2000 (TREMBlrel. 15, Created)  
DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)  
DT 05-JUL-2004 (TREMBlrel. 27, Last annotation update)  
DE Four-loop conotoxin (Fragment).  
OS Conus striatus (Striated cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=6493;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA Duda T.P., Palumbi S.R.;  
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
DR EMBL; AF174266; AAF89930.1; -  
DR EMBL; AF174253; AAF89917.1; -  
DR EMBL; AF174255; AAF89919.1; -  
DR EMBL; AF174256; AAF89920.1; -  
DR EMBL; AF174257; AAF89921.1; -  
DR EMBL; AF174259; AAF89923.1; -  
DR EMBL; AF174260; AAF89924.1; -  
DR EMBL; AF174263; AAF89927.1; -  
DR EMBL; AF174264; AAF89928.1; -  
DR PIR; B44379; B44379.  
DR GO; GO:0005576; C:extracellular; IEA.  
DR GO; GO:0008200; P:ion channel inhibitor activity; IEA.  
DR GO; GO:0009405; P:pathogenesis; IEA.  
DR InterPro; IPR004214; Conotoxin.  
DR Pfam; PF02950; Conotoxin; 1.  
FT NON\_TER 1  
SQ SEQUENCE 67 AA; 7247 MW; FE39D9CF56A9D37B CRC64;  
Query Match 97.9%; Score 137; DB 2; Length 67;  
Best Local Similarity 95.8%; Pred. No. 1.8e-09;  
Matches 23; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
QY 1 CRSSGSGCVTSICCGRCYRGKCT 24  
Db 44 CRSSGSGCVTSICCGRCYRGKCT 67  
RESULT 2  
Q9NCU2 PRELIMINARY; PRT; 67 AA.  
AC Q9NCU2;  
DT 01-OCT-2000 (TREMBlrel. 15, Created)  
DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)  
DT 01-OCT-2003 (TREMBlrel. 25, Last annotation update)  
DE Four-loop conotoxin (Fragment).  
OS Conus striatus (Striated cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;

OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=6493;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174265; AAF89929.1; --  
 DR PIR; B44379; B44379.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 DR GO; GO:0009405; P:pathogenesis; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 FT NON\_TER 1  
 SQ SEQUENCE 67 AA; 7217 MW; FE39CD9E13A9D37B CRC64;

Query Match 97.9%; Score 137; DB 2; Length 67;  
 Best Local Similarity 95.8%; Pred. No. 1.8e-09;  
 Matches 23; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CRSSGSGVTSICGRCYRGKCT 24  
 |||||  
 DB 44 CRSSGSPCGVTSICGRCYRGKCT 67

## RESULT 3

Q9NCU3 PRELIMINARY; PRT; 67 AA.  
 AC Q9NCU3;  
 DT 01-OCT-2000 (TrEMBLrel. 15, Created)  
 DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)  
 DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)  
 DE Four-loop conotoxin (fragment).  
 OS Conus striatus (Striated cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=6493;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174265; AAF89926.1; --  
 DR PIR; B44379; B44379.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 DR GO; GO:0009405; P:pathogenesis; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 FT NON\_TER 1  
 SQ SEQUENCE 67 AA; 7233 MW; FE39C3D556B3C97B CRC64;

Query Match 97.9%; Score 137; DB 2; Length 67;  
 Best Local Similarity 95.8%; Pred. No. 1.8e-09;  
 Matches 23; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CRSSGSGVTSICGRCYRGKCT 24  
 |||||  
 DB 44 CRSSGSPCGVTSICGRCYRGKCT 67

## RESULT 4

Q9NCU6 PRELIMINARY; PRT; 67 AA.  
 AC Q9NCU6;  
 DT 01-OCT-2000 (TrEMBLrel. 15, Created)  
 DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)  
 DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)  
 DE Four-loop conotoxin (fragment).  
 OS Conus striatus (Striated cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;

OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=6493;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174254; AAF89918.1; --  
 DR PIR; B44379; B44379.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 DR GO; GO:0009405; P:pathogenesis; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 FT NON\_TER 1  
 SQ SEQUENCE 67 AA; 7231 MW; AE39C9DF56A9D367 CRC64;

Query Match 97.9%; Score 137; DB 2; Length 67;  
 Best Local Similarity 95.8%; Pred. No. 1.8e-09;  
 Matches 23; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CRSSGSGVTSICGRCYRGKCT 24  
 |||||  
 DB 44 CRSSGSPCGVTSICGRCYRGKCT 67

## RESULT 5

CXOA CONST STANDARD; PRT; 72 AA.  
 AC P28880; Q9UB26;  
 DT 01-DEC-1992 (Rel. 24, Created)  
 DT 16-OCT-2001 (Rel. 40, Last sequence update)  
 DT 25-OCT-2004 (Rel. 45, Last annotation update)  
 DE Omega-conotoxin SVIA precursor (SNX-157).  
 OS Conus striatus (Striated cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=6493;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Tissue=venom duct;  
 RX MEDLINE=20037955; PubMed=10573284; DOI=10.1016/S0196-9781(99)00116-3;  
 RT Lu B.-S., Yu P., Zhao D., Huang P.-T., Huang C.-F.;  
 RT "Conopeptides from Conus striatus and Conus textile by cDNA cloning.";  
 RL Peptides 20:1139-1144(1999).  
 RN [2]  
 RP SEQUENCE OF 49-72, AND SYNTHESIS.  
 RX Tissue=venom;  
 RC MEDLINE=93003172; PubMed=1390774;  
 RA Ramilo C., Zafaralla G.C., Nadasdi L., Hammerland L.G., Yoshikami D.,  
 RA Gray W.R., Kristipati R., Ramachandran J., Miljanich G., Olivera B.M.,  
 RA Cruz L.J.;  
 RT "Novel alpha- and omega-conotoxins from Conus striatus venom.";  
 RL Biochemistry 31:9919-9926(1992).  
 CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind  
 and block voltage-sensitive calcium channels (VSCC).  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type family.

-----  
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 -----

DR EMBL; AF146347; AAD31907.1; --  
 DR PIR; B44379; B44379.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.

KW Amidation; Calcium channel inhibitor; Direct protein sequencing;  
 KW Hydroxylation; Ionic channel inhibitor; Neurotoxin;  
 KW Presynaptic neurotoxin; Signal; Toxin.  
 FT SIGNAL 1 22 Potential.  
 FT PROPEP 23 48 Omega-conotoxin SVIA.  
 FT PEPTIDE 49 72  
 FT DISULFID 49 63  
 FT DISULFID 56 66  
 FT DISULFID 62 71  
 FT MOD RES 55 55 Hydroxyproline.  
 FT MOD RES 72 72 Threonine amide.  
 SQ SEQUENCE 72 AA; 7830 MW; 4A6A412E450469A1 CRC64;

Query Match  
 Best Local Similarity 95.8%; Score 137; DB 1; Length 72;  
 Matches 23; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CRSSGSXCGVTSICGRCYRGKCT 24  
 DB 49 CRSSGSPCGVTSICGRCYRGKCT 72

## RESULT 6

Q9NCU5 PRELIMINARY; PRT; 67 AA.  
 AC Q9NCU5;  
 DT 01-OCT-2000 (TREMELrel. 15, Created)  
 DT 01-OCT-2000 (TREMELrel. 15, Last sequence update)  
 DE Four-loop conotoxin (Fragment).  
 OS Conus striatus (Striated cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 RN NCBI\_TaxID=6493;  
 RP SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174258; AAF89922.1; -.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 DR GO; GO:0009405; P:pathogenesis; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 FT NON TER 1  
 SQ SEQUENCE 67 AA; 7217 MW; FE39D9CF47EDD37B CRC64;

Query Match  
 Best Local Similarity 95.0%; Score 133; DB 2; Length 67;  
 Matches 22; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CRSSGSXCGVTSICGRCYRGKCT 24  
 DB 44 CRSSGSPCGVTSICGRCYRGKCT 67

## RESULT 7

Q9XZL4 STANDARD; PRT; 72 AA.  
 AC Q9XZL4;  
 DT 28-FEB-2003 (Rel. 41, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Omega-conotoxin SVIA mutant 1 precursor.  
 OS Conus striatus (Striated cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 RN NCBI\_TaxID=6493;  
 RP SEQUENCE FROM N.A.  
 RA TISSUE=Venom duct;

Query Match  
 Best Local Similarity 91.4%; Score 128; DB 2; Length 67;

RX MEDLINE=20037955; PubMed=10573284; DOI=10.1016/S0196-9781(99)00116-3;  
 RA Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-F.;  
 RT "Conopeptides from Conus striatus and Conus textile by cDNA cloning";  
 RL Peptides 20:1139-1144(1999).  
 CC FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind  
 CC and block voltage-sensitive calcium channels (VSCC) (By  
 CC similarity).  
 CC SUBCELLULAR LOCATION: Secreted.  
 CC TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type  
 CC family.

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 or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).

EMBL; AF146360; AAD31920.1; -.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 KW Amidation; Calcium channel inhibitor; Hydroxylation;  
 KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Signal;  
 KW Toxin.  
 FT SIGNAL 1 22 Potential.  
 FT PROPEP 23 48 By similarity.  
 FT PEPTIDE 49 72 Omega-conotoxin SVIA mutant 1.  
 FT DISULFID 49 63 By similarity.  
 FT DISULFID 56 66 By similarity.  
 FT DISULFID 62 71 By similarity.  
 FT DISULFID 62 71 Hydroxyproline (By similarity).  
 FT MOD RES 55 55 Threonine amide (By similarity).  
 FT MOD RES 72 72  
 SQ SEQUENCE 72 AA; 7804 MW; 4A7E0560B1AD5420 CRC64;

Query Match  
 Best Local Similarity 94.3%; Score 132; DB 1; Length 72;  
 Matches 22; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CRSSGSXCGVTSICGRCYRGKCT 24  
 DB 49 CRSSGSPCGVTSICGRCYRGKCT 72

## RESULT 8

Q9NCU4 PRELIMINARY; PRT; 67 AA.  
 AC Q9NCU4;  
 DT 01-OCT-2000 (TREMELrel. 15, Created)  
 DT 01-OCT-2000 (TREMELrel. 15, Last sequence update)  
 DT 01-OCT-2003 (TREMELrel. 25, Last annotation update)  
 DE Four-loop conotoxin (Fragment).  
 OS Conus striatus (Striated cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 RN NCBI\_TaxID=6493;  
 RP SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174261; AAF89925.1; -.  
 DR PIR; B44379; B44379.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 DR GO; GO:0009405; P:pathogenesis; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 FT NON TER 1  
 SQ SEQUENCE 67 AA; 7300 MW; AF38D9CF56A9D367 CRC64;

Query Match  
 Best Local Similarity 91.4%; Score 128; DB 2; Length 67;

Best Local Similarity 95.7%; Pred. No. 2.1e-08;  
Matches 22; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 RSSGSGVTSICCGRCYRGKCT 24  
DB 45 RSSGSPCGVTSICCGRCYRGKCT 67

## RESULT 9

CKO2\_CONST STANDARD; PRT; 72 AA.  
AC Q9XZL5;  
DT 28-FEB-2003 (Rel. 41, Created)  
DT 28-FEB-2003 (Rel. 41, Last sequence update)  
DT 05-JUL-2004 (Rel. 44, Last annotation update)  
DE Omega-conotoxin SVIA mutant 2 precursor.  
OS Conus striatus (Striated cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=6493;  
RN [1]

## SEQUENCE FROM N.A.

RP TISSUE=Venom duct;  
RX MEDLINE=20037955; PubMed=10573284; DOI=10.1016/S0196-9781(99)00116-3;  
RA Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-F.;  
RT "Conopeptides from Conus striatus and Conus textile by cDNA cloning.";  
RL Peptides 20:1139-1144(1999).

CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind  
CC and block voltage-sensitive calcium channels (VSCC) (By  
CC similarity).

CC -!- SUBCELLULAR LOCATION: Secreted.

CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.

CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type  
CC family.

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DR EMBL; AF146361; AAD31921.1; --  
DR InterPro; IPR004214; Conotoxin.

DR Pfam; PF02950; Conotoxin; 1.

KW Amidation; Calcium channel inhibitor; Hydroxylation;

KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Signal;

KW Toxin.

FT SIGNAL 1 22 Potential.

FT PROPEP 23 48 By similarity.

FT PEPTIDE 49 72 Omega-conotoxin SVIA mutant 2.

FT DISULFID 49 63 By similarity.

FT DISULFID 56 66 By similarity.

FT DISULFID 62 71 By similarity.

FT MOD\_RES 55 55 Hydroxyproline (By similarity).

FT MOD\_RES 72 72 Threonine amide (By similarity).

SQ SEQUENCE 72 AA; 7790 MW; 4A7E1124F0B7F061 CRC64;

Query Match 87.9%; Score 123; DB 1; Length 72;

Best Local Similarity 87.5%; Pred. No. 9.2e-08;

Matches 21; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CRSPGSPCGVTSICCGRCYRGKCT 24

DB 49 CRPSPGSPCGVTSICCGRCYRGKCT 72

## RESULT 10

Q6XE28 PRELIMINARY; PRT; 67 AA.  
ID Q6XE28  
AC Q6XE28;

DT 05-JUL-2004 (TrEMBLrel. 27, Created)  
DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)  
DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)  
DE Four-loop conotoxin (Fragment).  
OS Conus ermineus (Atlantic fish-hunting cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=55423;  
RN [1]

## SEQUENCE FROM N.A.

RA Duda T.F. Jr., Palumbi S.R.;  
RL Submitted (FEB-2003) to the EMBL/GenBank/DBJ databases.

DR EMBL; AY236863; AAP75889.1; --

DR GO; GO:0005576; C:extracellular; IEA.

DR GO; GO:0008200; P:ion channel inhibitor activity; IEA.

DR GO; GO:0009405; P:pathogenesis; IEA.

DR InterPro; IPR004214; Conotoxin.

FT Pfam; PF02950; Conotoxin; 1.

FT NON\_TER 1

SQ SEQUENCE 67 AA; 7279 MW; 597A082939150DD3 CRC64;

Query Match 53.6%; Score 75; DB 2; Length 67;

Best Local Similarity 52.0%; Pred. No. 0.055;

Matches 13; Conservative 1; Mismatches 9; Indels 2; Gaps 1;

QY 1 CRSSGSGVTSICCGRCY--RGKC 23

DB 42 CTPHGSGGLVSTCCGRCVPRNKC 66

## RESULT 11

Q9NCU8 PRELIMINARY; PRT; 72 AA.  
ID Q9NCU8

AC Q9NCU8;

DT 01-OCT-2000 (TrEMBLrel. 15, Created)

DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)

DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)

DE Four-loop conotoxin (Fragment).

OS Conus striatus (Striated cone).

OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;

OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;

OC Neogastropoda; Conoidea; Conidae; Conus.

OX NCBI\_TaxID=6493;

RN [1]

RP SEQUENCE FROM N.A.

RA Duda T.F., Palumbi S.R.;

RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.

DR EMBL; AF174248; AAF89912.1; --

DR GO; GO:0005576; C:extracellular; IEA.

DR GO; GO:0008200; P:ion channel inhibitor activity; IEA.

DR GO; GO:0009405; P:pathogenesis; IEA.

DR InterPro; IPR004214; Conotoxin.

DR Pfam; PF02950; Conotoxin; 1.

FT NON\_TER 1

SQ SEQUENCE 72 AA; 7763 MW; 9FA4FB1B8624CF71 CRC64;

Query Match 47.1%; Score 66; DB 2; Length 72;

Best Local Similarity 58.3%; Pred. No. 0.72;

Matches 14; Conservative 1; Mismatches 7; Indels 2; Gaps 2;

QY 1 CRSSGSGVTSICCGRCYRGK 22

DB 41 CMEAGSYCGSTTRICCGYCAIFGK 64

## RESULT 12

Q9NCU9 PRELIMINARY; PRT; 72 AA.  
ID Q9NCU9

AC Q9NCU9;

DT 01-OCT-2000 (TrEMBLrel. 15, Created)

DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)

DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)

```

DE Four-loop conotoxin (Fragment).
OS Conus striatus (Striated cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6493;
RN [1]_
SEQUENCE FROM N.A.
RA Duda T.P., Palumbi S.R.;
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0008200; P:ion channel inhibitor activity; IEA.
DR GO; GO:0009405; P:pathogenesis; IEA.
DR InterPro; IPR004214; Conotoxin.
DR Pfam; PF02950; Conotoxin; 1.
FT NON_TER 1
SQ SEQUENCE 72 AA; 7773 MW; 9FA708D4B924CF71 CRC64;

Query Match 47.1%; Score 66; DB 2; Length 72;
Best Local Similarity 58.3%; Pred. No. 0.72;
Matches 14; Conservative 1; Mismatches 7; Indels 2; Gaps 2;

QY 1 CRSSGSXCG-VTSICGRC-YRGK 22
DB 41 CMEAGSYCGSTTRICGCAVFGK 64

RESULT 13
CX05 CONST STANDARD; PRT; 77 AA.
AC Q9XZK4;
DT 16-OCT-2001 (Rel. 40, Created)
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Omega-type conotoxin S05 precursor.
GN Name=S05;
OS Conus striatus (Striated cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6493;
RN [1]_
SEQUENCE FROM N.A.
RA TISSUE=Venom duct;
RC MEDLINE=20037955; PubMed=10573284; DOI=10.1016/S0196-9781(99)00116-3;
RX Lu B.-S., Yu P., Zhao D., Huang P.-T., Huang C.-F.;
RT "Conopeptides from Conus striatus and Conus textile by cDNA cloning.";
RL Peptides 20:1139-1144(1999).
CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC and block voltage-sensitive calcium channels (VSCC) (By
CC similarity).
CC -!- SUBCELLULAR LOCATION: Secreted (By similarity).
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type
CC family.

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EMBL; AF146350; AD31910.1; -.
DR InterPro; IPR004214; Conotoxin.
DR Pfam; PF02950; Conotoxin; 1.
KW Calcium channel inhibitor; Ionic channel inhibitor; Neurotoxin;
FT SIGNAL 1 22 Potential.
FT PROPEP 23 42 By similarity.
FT PEPTIDE 43 77 Omega-type conotoxin S05.

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FT DISULFID 46 61 By similarity.
FT DISULFID 53 64 By similarity.
FT DISULFID 60 71 By similarity.
SQ SEQUENCE 77 AA; 8372 MW; 0FB5F480C7709CE9 CRC64;

Query Match 47.1%; Score 66; DB 1; Length 77;
Best Local Similarity 58.3%; Pred. No. 0.76;
Matches 14; Conservative 1; Mismatches 7; Indels 2; Gaps 2;

QY 1 CRSSGSXCG-VTSICGRC-YRGK 22
DB 46 CMEAGSYCGSTTRICGCAVFGK 69

RESULT 14
Q9NCV6 PRELIMINARY; PRT; 66 AA.
AC Q9NCV6;
DT 01-OCT-2000 (TRENBLrel. 15, Created)
DT 01-OCT-2000 (TRENBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TRENBLrel. 25, Last annotation update)
DE Four-loop conotoxin (Fragment).
OS Conus catus (Cat cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=101291;
RN [1]_
SEQUENCE FROM N.A.
RA Duda T.P., Palumbi S.R.;
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF174237; AAF89901.1; -.
DR HSP; P05484; IPEO.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0008200; P:ion channel inhibitor activity; IEA.
DR GO; GO:0009405; P:pathogenesis; IEA.
DR InterPro; IPR004214; Conotoxin.
DR Pfam; PF02950; Conotoxin; 1.
FT NON_TER 1
SQ SEQUENCE 66 AA; 7084 MW; EA11338A68C617DA CRC64;

Query Match 46.4%; Score 65; DB 2; Length 66;
Best Local Similarity 48.0%; Pred. No. 0.88;
Matches 12; Conservative 4; Mismatches 7; Indels 2; Gaps 1;

QY 1 CRSSGSXCGVTS--ICCGCYRGKC 23
DB 41 CKSTGASCRSTSYDCCTGSCDRGRC 65

RESULT 15
CX0B CONVA STANDARD; PRT; 25 AA.
AC P05485;
DT 01-NOV-1988 (Rel. 09, Created)
DT 01-NOV-1988 (Rel. 09, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Omega-conotoxin MVIIb (SNX-159).
OS Conus magus (Magus cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6492;
RN [1]_
SEQUENCE
RP MEDLINE=87299637; PubMed=2441741;
RX Olivera B.M., Cruz L.J., de Santos V., Lecheminant G.W., Griffin D.,
RA Zeikus R.D., McIntosh J.M., Galyean R., Varga J., Gray W.R.,
RA Rivier J.E.;
RT "Neuronal calcium channel antagonists. Discrimination between calcium
channel subtypes using omega-conotoxin from Conus magus venom.";
RL Biochemistry 26:2086-2090(1987).
CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind

```



GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:44:17 ; Search time 84.0924 Seconds  
(without alignments)  
119.580 Million cell updates/sec

Title: US-09-787-082A-14  
Perfect score: 155  
Sequence: 1 CKLQSQCRKTSYDCCSGSGRSGKC 26

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : A\_Geneseq\_16Dec04:.\*  
1: Geneseqp1980s:.\*  
2: Geneseqp1990s:.\*  
3: Geneseqp2000s:.\*  
4: Geneseqp2001s:.\*  
5: Geneseqp2002s:.\*  
6: Geneseqp2003as:.\*  
7: Geneseqp2003bs:.\*  
8: Geneseqp2004s:.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	155	100.0	26	2 AAR39615	Aar39615 SVIB/SNX1
2	155	100.0	26	2 AAR37760	Aar37760 SVIB/SNX-
3	155	100.0	26	2 AAW19551	Aaw19551 Natural o
4	155	100.0	26	2 AAW12974	Aaw12974 Omega con
5	155	100.0	26	2 AAW72612	Aaw72612 Conus gen
6	155	100.0	26	2 AAW95571	Aaw95571 Omega-con
7	155	100.0	26	3 AAY56480	Aay56480 Natural o
8	155	100.0	26	3 AAB14359	Aab14359 Omega-con
9	155	100.0	26	4 AAB92221	Aab92221 Toxin pep
10	155	100.0	26	4 AAB19449	Aab19449 Primary s
11	155	100.0	26	5 AAO15126	Aao15126 Cone snai
12	147	94.8	26	5 ABB96790	Abb96790 Omega-con
13	142	91.6	26	5 ABB96887	Abb96887 Omega-con
14	142	91.6	30	5 ABB96679	Abb96679 Omega-con
15	135	87.1	26	2 AAR39628	Aar39628 SNX-202.
16	135	87.1	26	2 AAR37774	Aar37774 SNX-202.
17	135	87.1	26	2 AAW19570	Aaw19570 SNX-202.
18	135	87.1	26	2 AAW12985	Aaw12985 Omega con
19	135	87.1	26	2 AAW72625	Aaw72625 Conus gen
20	135	87.1	26	2 AAW95584	Aaw95584 Analog cm
21	135	87.1	26	3 AAY56496	Aay56496 Analogue
22	135	87.1	26	3 AAB14370	Aab14370 Omega-con
23	135	87.1	26	4 AAB19462	Aab19462 Sequence
24	134	86.5	26	5 ABB96786	Abb96786 Omega-con
25	128	82.6	26	2 AAW19553	Aaw19553 Natural o

26	127	81.9	26	2 AAW12987	Aaw12987 Omega con
27	127	81.9	26	2 AAW12801	Aaw12801 Omega-con
28	127	81.9	26	3 AAY56482	Aay56482 Natural o
29	127	81.9	26	3 AAB14372	Aab14372 Omega-con
30	126	81.3	26	2 AAR39616	Aar39616 MVIIC/SNX
31	126	81.3	26	2 AAR39617	Aar39617 SNX231.. 3
32	126	81.3	26	2 AAR37762	Aar37762 SNX-231.
33	126	81.3	26	2 AAR37761	Aar37761 MVIIC/SNX
34	126	81.3	26	2 AAW19552	Aaw19552 Natural o
35	126	81.3	26	2 AAW72614	Aaw72614 Conus gen
36	126	81.3	26	2 AAW72613	Aaw72613 Conus gen
37	126	81.3	26	2 AAW95572	Aaw95572 Omega-con
38	126	81.3	26	2 AAW95573	Aaw95573 Omega-con
39	126	81.3	26	3 AAY56481	Aay56481 Natural o
40	126	81.3	26	3 AAY43715	Aay43715 Amino aci
41	126	81.3	26	3 AAB14377	Aab14377 Omega-con
42	126	81.3	26	4 AAB92220	Aab92220 Toxin pep
43	126	81.3	26	4 AAB19450	Aab19450 Primary s
44	126	81.3	26	4 AAB19451	Aab19451 Primary s
45	126	81.3	26	5 AAO15125	Aao15125 Cone snai

## ALIGNMENTS

## RESULT 1

AAR39615  
ID AAR39615 standard; peptide; 26 AA.

XX AAR39615;

DT 25-MAR-2003 (revised)

DT 20-DEC-1993 (first entry)

XX SVIB/SNX183.

XX Omega conopeptide; OCT; analgesia; inhibition; voltage-gated;  
KW calcium channel; neurone; contraction; guinea pig; ileum; MVIIC;  
KW binding site; toxin; marine; snail; Conus; opiod; chronic pain;  
KW narcotics.  
XX Synthetic.

XX Key Location/Qualifiers

FT Disulfide-bond 1..16

FT Disulfide-bond 8..20

FT Disulfide-bond 15..26

XX WO9313128-A1.

XX 08-JUL-1993.

XX 30-DEC-1992; 92WO-US011349.

XX 30-DEC-1991; 91US-00814759.

XX (NEUR-) NEUREX CORP.

XX Justice A, Singh T, Gohil K, Valentino KL, Miljanich GP;

XX WPI; 1993-227270/28.

XX Use of omega-cono-peptide(s) which selectively inhibit voltage-gated  
PT calcium channels - to induce analgesia, enhance opiate analgesics, treat  
PT pain etc.

XX Claim 1; Fig 1; 90pp; English.

XX The sequences given in AAR39608-30 are omega conopeptides (OCTs) and  
CC derivatives of these, which may be used to produce analgesia in a mammal.  
CC These OCTs inhibit voltage-gated calcium channels selectively in neuronal  
CC tissue. This is shown by the peptides ability to stimulate contraction in  
CC guinea pig ileum and to bind to OCT MVIIC binding sites present in

CC neuronal tissue. OCTs are components of peptide toxins derived from  
 CC marine snails of the genus Conus, and act as calcium channel blockers.  
 CC These OCTs may be used to replace opioids in the treatment of chronic pain  
 CC or to reduce the opioid dosage required. This helps to reduce dependence  
 CC on and tolerance to opioid narcotics. (Updated on 25-MAR-2003 to correct  
 CC PN field.)  
 XX  
 XX

SQ Sequence 26 AA;

Query Match 100.0%; Score 155; DB 2; Length 26;  
 Best Local Similarity 100.0%; Pred. No. 3e-10;  
 Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 CKLKGQSCRKTSYDCSGSGRSGKC 26  
 DB 1 CKLKGQSCRKTSYDCSGSGRSGKC 26

# RESULT 2

AAAR37760  
 ID AAR37760 standard; peptide; 26 AA.

XX  
 AC AAR37760;

XX  
 DT 25-MAR-2003 (revised)

DT 08-SEP-1993 (first entry)

XX SVIB/SNX-183.

XX Ischaemia; neuronal; omega-conotoxin; OCT; MVIIA; MVIIC; MVIID; MVIIB;  
 KW GVIA; GVIIA; RVIA; SVIA; SVIB; SNX-207; stroke; delayed treatment;  
 KW antihistamine; blood pressure; N-type voltage-gated Ca currents;  
 KW N-channel mediated neurotransmitter release.

XX Synthetic.

XX Key Location/Qualifiers  
 FH Disulfide-bond 1..16  
 FT Disulfide-bond 8..20  
 FT Disulfide-bond 15..26

XX WO9310145-A1.

XX 27-MAY-1993.

XX 12-NOV-1992; 92WO-US009766.

XX 12-NOV-1991; 91US-00789913.

PR 17-JUL-1992; 92US-00916478.

PA (NEUR-) NEUREX CORP.

XX Miljanich GP, Bowersox SS, Fox JA, Valentino KL, Bitner RS;  
 PI Yamashiro DH;

XX WPI; 1993-182487/22.

XX Redn. of neuronal damage caused by ischaemia - by admin. of cpds. that  
 PT bind specifically to omega-conotoxin MVIIA binding sites.

XX Disclosure; Fig 1; 103pp; English.

XX Ischaemia-related neuronal damage in mammals is reduced by admin., 4-24  
 CC hr after onset of ischaemia, of a cpd. (I) which binds selectively to an  
 CC omega-conotoxin (OCT) MVIIA site in neuronal tissue. (I) has selectivity  
 CC at least 100 expressed as ratio of binding affinity for the MVIIA site to  
 CC that for the MVIIC site. (I) is one of the OCTs MVIIA, MVIIB, GVIA, GVIIA  
 CC or RVIA or it is the cpd. SNX-207. (I) is esp. used to reduce neuronal  
 CC damage caused by stroke. By delaying admin. for some time (compare  
 CC US051403 where cpds. are given within 1 hr of the onset of ischaemia) a  
 CC greater redn. in neuronal damage is achieved. (I) is admin. e.g. by  
 CC intracerebroventricular (ICV) injection at 0.1-20 microg/kg, but can also  
 CC be given i.v. (opt.) after treatment with antihistamines to minimise redn.

CC in blood pressure caused by (I). (I) is also at least as effective as  
 CC the specified conotoxins for (1) selective inhibition of N-type voltage-  
 CC gated Ca currents in neuronal tissue and (2) selective inhibition of N-  
 CC channel mediated neurotransmitter release in neuronal tissue. Primary  
 CC sequences of omega-conopeptides are given in AAR37752-62. Several analog  
 CC omega-conopeptides are given in AAR37763-76. (Updated on 25-MAR-2003 to  
 CC correct PN field.)  
 XX

SQ Sequence 26 AA;

Query Match 100.0%; Score 155; DB 2; Length 26;  
 Best Local Similarity 100.0%; Pred. No. 3e-10;  
 Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 CKLKGQSCRKTSYDCSGSGRSGKC 26  
 DB 1 CKLKGQSCRKTSYDCSGSGRSGKC 26

# RESULT 3

AAW19551  
 ID AAW19551 standard; peptide; 26 AA.

XX  
 AC AAW19551;

XX  
 DT 27-AUG-2003 (revised)

DT 13-OCT-1997 (first entry)

XX Natural omega-conopeptide SVIB/SNX-183 used for pain relief.

XX Conopeptide; cone snail; pain; analgesic; neuropathy; epidural;  
 KW N-type voltage-sensitive calcium channel; block; Conus.

XX Conus.

XX Key Location/Qualifiers  
 FH Modified-site 26  
 FT /note= "optionally amidated"

XX WO9701351-A1.

XX 16-JAN-1997.

XX 26-JUN-1996; 96WO-US011041.

XX 27-JUN-1995; 95US-00496847.

PR 08-MAR-1996; 96US-00613400.

PA (NEUR-) NEUREX CORP.

XX Amstutz GA, Bowersox SS, Gohil K, Adriaenssens PI, Kristipati R;  
 PI Gadbois T, Pettus MR, Luther RR;

XX WPI; 1997-100012/09.

XX Stable omega conopeptide compositions - for producing analgesia and for  
 PT inhibiting progression of neuropathic pain disorders.

XX Disclosure; Fig 2, Fig 3; 47pp; English.

XX AAW19544-W19553 are naturally occurring omega conopeptides (OCs) isolated  
 CC from Conus sp. (cone snails). The peptides and their analogues are used  
 CC as analgesics acting by blocking N-type voltage-sensitive calcium  
 CC channels. The OCs can be used to treat neuropathic pain as a result of  
 CC e.g. insult to the spinal cord or peripheral nerves, cancer, bone  
 CC degenerative diseases, AIDS, reflex sympathetic dystrophy, herpes zoster  
 CC neuropathy, diabetic neuropathy, hyperesthesia, allodynia or  
 CC hyperalgesia. The OCs are preferably administered in a medicament via an  
 CC epidural route in a continuous infusion or sustained release formulation.  
 CC The OCs can provide pain relief when administered epidurally in the  
 CC absence of a permeation enhancer, at doses that are comparable to  
 CC effective analgesic doses using intrathecal administration. OC  
 CC formulations comprising an OC and a carboxylic acid buffer anti-oxidant.



CC They also confer stability to solutions containing them for prolonged  
 CC treatment methods and long-term storage. (Updated on 27-AUG-2003 to  
 CC correct OS field.)

SQ Sequence 26 AA;

Query Match 100.0%; Score 155; DB 2; Length 26;  
 Best Local Similarity 100.0%; Pred. No. 3e-10;  
 Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKLKGQSCRKTSYDCCSGSGRSGKC 26

DB 1 CKLKGQSCRKTSYDCCSGSGRSGKC 26

#### RESULT 4

AAW12974  
 ID AAW12974 standard; peptide; 26 AA.

XX AAW12974;

XX 25-MAR-2003 (revised)

DT 22-APR-1997 (first entry)

XX Omega conopeptide SNX-183.

XX Omega conopeptide; analgesic; treatment; neuropathic pain; inhibition;  
 KW neuronal damage; schizophrenia; tardive dyskinesia; analgesia;  
 KW acute dystonic reactions; inflammation; epilepsy.

OS Synthetic.

XX US5587454-A.

PN 24-DEC-1996.

XX 15-APR-1993; 93US-00049794.

XX 30-DEC-1991; 91US-00814759.

PR 30-DEC-1992; 92WO-US011349.

XX (NEUR-) NEUREX CORP.

XX Gohil KC, Miljanich GP, Valentino KL, Justice A, Singh T;

XX WPI; 1997-064830/06.

XX Omega conopeptide(s) - useful as analgesics, esp. for treating  
 PT neuropathic pain.

XX Disclosure; Col 45-46; 58pp; English.

XX The present peptide is an omega conopeptide, useful as an analgesic;  
 CC especially for treating neuropathic pain. The peptide, which can be  
 CC prepared by solid phase synthesis, can also be used to inhibit neuronal  
 CC damage and treat schizophrenia, tardive dyskinesia, acute dystonic  
 CC reactions, inflammation and epilepsy. (Updated on 25-MAR-2003 to correct  
 CC PF field.)

XX Sequence 26 AA;

Query Match 100.0%; Score 155; DB 2; Length 26;  
 Best Local Similarity 100.0%; Pred. No. 3e-10;  
 Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKLKGQSCRKTSYDCCSGSGRSGKC 26

DB 1 CKLKGQSCRKTSYDCCSGSGRSGKC 26

#### RESULT 5

AAW72612  
 ID AAW72612 standard; peptide; 26 AA.

XX AC

AAW72612;

XX 27-AUG-2003 (revised)

DT 06-JAN-1999 (first entry)

XX Conus genus natural omega-conopeptide SVIB/SNX-183.

DE Conus genus; marine snail; cone snail; omega-conopeptide; analgesia;

XX nociceptive pain; neuropathic pain; neuronal tissue; conotoxin;  
 KW inflammation; schizophrenia; tardive dyskinesia; acute dystonic reaction;  
 KW rheumatoid arthritis; epilepsy.

XX OS

Conus.

XX US5824645-A.

PN 20-OCT-1998.

PD 01-NOV-1996; 96US-00742774.

XX 30-DEC-1991; 91US-00814759.

PR 15-APR-1993; 93US-00049794.

PR 03-JUL-1996; 96US-00675354.

XX (NEUR-) NEUREX CORP.

PA Miljanich GP, Valentino KL, Gohil KC, Justice A, Singh T;

XX WPI; 1998-582596/49.

XX Treatment of inflammation, comprises administration of omega-conopeptide

PT - effective to block voltage-gated calcium channels, bind with high

PT affinity to omega-conopeptide binding site, and inhibit neuro-transmitter

PT release.

XX Disclosure; Fig 1; 58pp; English.

PS A method has been developed for the treatment of inflammation in a

XX subject. The method comprises administration of an omega-conopeptide

CC effective to: (i) block voltage-gated calcium channels; (ii) bind with

CC high affinity to an omega-conopeptide binding site; and (iii) inhibit

CC neurotransmitter release from nervous tissue. The method is used to treat

CC inflammation and associated pain. The treatment can also be used to

CC produce analgesia (especially in subjects experiencing neuropathic pain);

CC and to treat schizophrenia, tardive dyskinesia and acute dystonic

CC reactions, rheumatoid arthritis, and epilepsy. The present sequence

CC represents a natural omega-conopeptide. Omega-conopeptides are components

CC of peptide toxins produced by marine snails of the genus Conus, and which

CC act as calcium channel blockers. (Updated on 27-AUG-2003 to correct OS

CC field.)

XX Sequence 26 AA;

SQ Query Match 100.0%; Score 155; DB 2; Length 26;

Best Local Similarity 100.0%; Pred. No. 3e-10;

Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKLKGQSCRKTSYDCCSGSGRSGKC 26

DB 1 CKLKGQSCRKTSYDCCSGSGRSGKC 26

RESULT 6

AAW95571

ID AAW95571 standard; protein; 26 AA.

XX AAW95571;

XX 29-MAR-1999 (first entry)

XX Omega-conopeptide SVIB/SNX-183.

XX

KW Omega-conopeptide; peptide toxin; snail; calcium channel blocker;  
 KW analgesia; guinea pig ileum; omega-conotoxin; pain; neuropathic.

OS Synthetic.  
 OS Conus sp.

XX Key Location/Qualifiers  
 FT Modified-site 26  
 FT /note= "C-terminal amide"

XX US5859186-A.

XX 12-JAN-1999.

XX 03-JUL-1996; 96US-00675354.

XX 30-DEC-1991; 91US-00814759.

XX 15-APR-1993; 93US-00049794.

XX (NEUR-) NEUREX CORP.

XX Miljanich GP, Gohil KC, Valentino KL, Justice A, Singh T;

XX WPI; 1999-120002/10.

XX Production of analgesia in mammal - by administration of omega cono-

XX peptide(s).

XX Disclosure; Fig 1B; 59pp; English.

XX Sequences AAW95564-573 represent primary sequences of natural omega-conopeptides. Omega-conopeptides are components of peptide toxins produced by marine snails of the genus Conus, and which act as calcium channel blockers. The invention relates to a method of producing analgesia in a mammal that comprises administering an omega conopeptide having activities in (a) inhibiting electrically stimulated contraction of guinea pig ileum and (b) selectively binding to omega conopeptide MVIIA binding sites in neuronal tissue, where these activities are within the ranges of those of omega-conotoxins MVIIA and TVIA. The method is used for treating chronic pain, especially neuropathic pain

XX Sequence 26 AA;

Query Match 100.0%; Score 155; DB 2; Length 26;  
 Best Local Similarity 100.0%; Pred. No. 3e-10;  
 Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKLKGQSCRKTSYDCSGSGRSGKC 26

DB 1 CKLKGQSCRKTSYDCSGSGRSGKC 26

RESULT 7

AA556480

ID AA556480 standard; peptide; 26 AA.

AC AA556480;

XX 16-FEB-2000 (first entry)

XX Natural omega conopeptide SVIB/SNX-183.

XX Omega conopeptide; analgesic; nociceptive; neuropathic; pain; conotoxin;  
 KW marine snail; peptide toxin; inflammation; binding;  
 KW voltage-gated calcium channel; inhibition; norepinephrine; noradrenaline;  
 KW anti-inflammatory.

XX Conus sp.

XX US5994305-A.

XX 30-NOV-1999.

XX

PF 21-AUG-1998; 98US-00138439.

XX 30-DEC-1991; 91US-00814759.

PR 15-APR-1993; 93US-00049794.

PR 03-JUL-1996; 96US-00675354.

PR 01-NOV-1996; 96US-00742774.

XX (ELAN-) ELAN PHARM INC.

XX Justice A, Singh T, Valentino KL, Miljanich GP, Gohil KC;

XX WPI; 2000-038270/03.

XX Measuring the activity of test compounds in blocking voltage-gated

XX calcium channels, binding to the omega conopeptide binding site and

XX inhibiting norepinephrine (noradrenaline) release for treating

XX inflammation.

XX Disclosure; Fig 1; 47pp; English.

XX A method has been developed of selecting a test compound for treating  
 CC inflammation. The method comprises measuring the activity of the test  
 CC compound in blocking voltage-gated calcium channels, binding to the omega  
 CC conopeptide binding site and inhibiting norepinephrine (noradrenaline)  
 CC release from nervous tissue. The method is useful for selecting compounds  
 CC for treating inflammation. The selected compounds are capable of  
 CC producing analgesia in a mammalian subject with chronic or intractable  
 CC pain. Analgesia caused by selected compounds may reduce the reliance on  
 CC opioid analgesic agents of the prior art which cause dependency and  
 CC tolerance, requiring potentially dangerous increases in opioid doses to  
 CC achieve the analgesic effect. The present sequence represents an omega  
 CC conopeptide given in the present invention

XX Sequence 26 AA;

Query Match 100.0%; Score 155; DB 3; Length 26;  
 Best Local Similarity 100.0%; Pred. No. 3e-10;  
 Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKLKGQSCRKTSYDCSGSGRSGKC 26

DB 1 CKLKGQSCRKTSYDCSGSGRSGKC 26

RESULT 8

AAB14359

ID AAB14359 standard; peptide; 26 AA.

AC AAB14359;

XX 06-DEC-2000 (first entry)

XX Omega-conopeptide SVIB/SNX-183.

XX Marine snail; omega-conopeptide; calcium channel blocker; SVIB; SNX-183;  
 KW toxin; analgesic; antiinflammatory; anticonvulsant; neuroleptic;  
 KW norepinephrine release inhibitor; schizophrenia; tardive dyskinesia;  
 KW acute dystonic reaction; inflammation; epilepsy.

XX Conus sp.

XX Key Location/Qualifiers

FT Disulfide-bond 1. .16

FT Disulfide-bond 8. .20

FT Disulfide-bond 15. .26

FT Modified-site 26

FT /note= "C-terminal amide"

XX US6087091-A.

XX 11-JUL-2000.

XX 23-APR-1999; 99US-00298017.

XX PR 30-DEC-1991; 91US-00814759.  
 PR 15-APR-1993; 93US-00049794.  
 PR 03-JUL-1996; 96US-00675354.  
 PR 01-NOV-1996; 96US-00742774.  
 PR 21-AUG-1998; 98US-00138439.  
 XX (ELAN-) ELAN PHARM INC.  
 XX PI Singh T, Gohl K, Valentino KL, Miljanich GP, Justice A;  
 XX WPI; 2000-490177/43.  
 XX Selecting a compound for producing analgesia involves measuring activity  
 PT of test compound in blocking voltage-gated calcium channels, binding to  
 PT omega conopeptide binding site and inhibiting norepinephrine release.  
 XX Example 4; Fig 1; 58pp; English.  
 XX The present sequence is an omega-conopeptide from marine snails of the  
 CC genus Conus. Omega-conopeptides are components of peptide toxins produced  
 CC by the cone snails, and which act as calcium channel blockers. Natural  
 CC omega-conopeptides and their derivatives may be useful for producing  
 CC analgesia in nociceptive and neuropathic pain. The peptides bind to omega  
 CC -conopeptide binding sites, which are present mainly in neuronal tissue,  
 CC and inhibit norepinephrine release from nervous tissue. Conopeptides such  
 CC as MW1A and TVIA are effective as therapeutic agents for treating  
 CC neurogenic conditions such as schizophrenia, tardive dyskinesia and acute  
 CC dystonic reactions, inflammation and epilepsy  
 XX Sequence 26 AA;  
 SQ Query Match 100.0%; Score 155; DB 3; Length 26;  
 Best Local Similarity 100.0%; Pred. No. 3e-10;  
 Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 CKLKGQSCRKTSYDCGSGCGRSGKC 26  
 DB 1 CKLKGQSCRKTSYDCGSGCGRSGKC 26  
 RESULT 9  
 AAB92221  
 ID AAB92221 standard; peptide; 26 AA.  
 AC AAB92221;  
 XX 22-JUN-2001 (first entry)  
 DT Toxin peptide SEQ ID NO:1397.  
 DE Protection; endogenous therapeutic peptide; peptidase; conjugation;  
 KW blood component; modification; succinimide; maleimide group; amino;  
 KW hydroxyl; thiol; hormone; growth factor; neurotransmitter.  
 XX Homo sapiens.  
 OS Synthetic.  
 XX WO200069900-A2.  
 EN 23-NOV-2000.  
 PD 17-MAY-2000; 2000WO-US013576.  
 PF 17-MAY-1999; 99US-0134406P.  
 PR 10-SEP-1999; 99US-0153406P.  
 PR 15-OCT-1999; 99US-0159783P.  
 XX (CONJ-) CONJUCHEM INC.  
 XX Bridon DP, Errin AM, Milner PG, Holmes DL, Thibaudau K;  
 PI WPI; 2001-112059/12.  
 XX

XX PT Modifying and attaching therapeutic peptides to albumin prevents  
 PT peptidase degradation, useful for increasing length of in vivo activity.  
 XX PS Disclosure; Page 653-654; 733pp; English.  
 XX The present invention describes a modified therapeutic peptide (I)  
 CC comprising a therapeutically active amino acid region (III) and a  
 CC reactive group (II) (e.g. succinimide and maleimide groups) attached to  
 CC a less therapeutically active amino acid region (IV), which covalently  
 CC bonds with amino/hydroxyl/thiol groups on blood components to form a  
 CC peptidase stabilised therapeutic peptide composed of 3-50 amino acids.  
 CC (I) are useful for modifying therapeutic peptides e.g. hormones, growth  
 CC factors and neurotransmitters, to protect them from peptidase activity in  
 CC vivo for the treatment of various disorders. Endogenous therapeutic  
 CC peptides are not suitable as drug candidates as they require frequent  
 CC administration due to rapid degradation by peptidases in the body.  
 CC Modifying and attaching therapeutic peptides to albumin prevents or  
 CC reduces the action of peptidases to increase length of activity (half  
 CC life) and specificity as bonding to large molecules decreases  
 CC intracellular uptake and interference with physiological processes.  
 CC AAB90829 to AAB92441 represent peptides which can be used in the  
 CC exemplification of the present invention  
 XX Sequence 26 AA;  
 SQ Query Match 100.0%; Score 155; DB 4; Length 26;  
 Best Local Similarity 100.0%; Pred. No. 3e-10;  
 Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 CKLKGQSCRKTSYDCGSGCGRSGKC 26  
 DB 1 CKLKGQSCRKTSYDCGSGCGRSGKC 26  
 RESULT 10  
 AAB19449  
 ID AAB19449 standard; peptide; 26 AA.  
 XX AC AAB19449;  
 XX 06-MAR-2001 (first entry)  
 DT Primary sequence of a natural omega-conopeptide SVIB/SNX-183.  
 DE Omega-conopeptide; voltage-gated calcium channel inhibitor; analgesic;  
 KW peptide toxin; opiate; pain; neuronal damage; ischemic condition;  
 KW schizophrenia; tardive dyskinesia; acute dystonic reaction; inflammation;  
 KW epilepsy.  
 XX Conus sp.  
 OS Key Location/Qualifiers  
 FH Disulfide-bond 1..15  
 FT Disulfide-bond 8..19  
 FT Disulfide-bond 15..26  
 FT Modified-site 26  
 FT /note= "amidated C-terminal"  
 XX US6136786-A.  
 PN 24-OCT-2000.  
 PD 09-SEP-1999; 99US-00392979.  
 PF 30-DEC-1991; 91US-00814759.  
 PR 15-APR-1993; 93US-00049794.  
 PR 23-JUN-1993; 93US-00081863.  
 PR 03-JUL-1996; 96US-00675354.  
 PR 01-NOV-1996; 96US-00742774.  
 PR 21-AUG-1998; 98US-00138439.  
 PR 23-APR-1999; 99US-00298017.  
 XX

PA (ELAN-) ELAN PHARM INC.  
 PI Singh T, Gohil KC, Valentino KL, Miljanich GP, Justice A;  
 XX WPI; 2001-030946/04.  
 XX Enhancing analgesia produced by opiates by administering an omega-  
 PT conopeptide that inhibits electrically stimulated contraction of guinea  
 PT pig ileum and binds to omega-conopeptide MWIIA binding sites in neuronal  
 PT tissues.  
 XX  
 PS Disclosure; Fig 1; 58pp; English.  
 XX  
 CC The present sequence represents an omega-conopeptide. Omega-conopeptides  
 CC are components of peptide toxins which act as voltage-gated calcium  
 CC channel inhibitors. The peptides are used to enhance the analgesic effect  
 CC produced by an opiate in a mammalian subject. The method comprises  
 CC administering to the subject an omega-conopeptide which is able to  
 CC inhibit electrically stimulated contraction of the guinea pig ileum and  
 CC bind to omega-conopeptide MWIIA binding sites present in neuronal tissue.  
 CC Omega-conopeptides are useful for enhancing the analgesic effect produced  
 CC by an opiate. Omega-conopeptides may also be used in the treatment of  
 CC pain, in reducing neuronal damage related to an ischemic condition in  
 CC mammals, and in treating schizophrenia, tardive dyskinesia and acute  
 CC dystonic reactions, inflammation and epilepsy  
 XX  
 XX Sequence 26 AA;  
 SQ  
 Query Match 100.0%; Score 155; DB 4; Length 26;  
 Best Local Similarity 100.0%; Pred. No. 3e-10;  
 Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 CKLKGQSCRKTSYDCSGSGRSGKC 26  
 DB 1 CKLKGQSCRKTSYDCSGSGRSGKC 26  
 RESULT 11  
 ID AAO15126 standard; peptide; 26 AA.  
 AC AAO15126;  
 DT 22-AUG-2002 (first entry)  
 XX  
 DE Cone snail w-conotoxin peptide SVIB.  
 XX  
 KW Cone snail; venomous saliva; calcium channel blocking activity;  
 KW stenocardia; hypertension; myocarditis; arrhythmia; cerebral ischaemia;  
 KW w-conotoxin.  
 XX  
 OS Conus sp.  
 PN JP2002080499-A.  
 XX  
 PD 19-MAR-2002.  
 XX  
 PF 01-SEP-2000; 2000JP-00266187.  
 XX  
 PR 01-SEP-2000; 2000JP-00266187.  
 XX  
 PA (SUNR ) SUNTORY LTD.  
 XX  
 DR WPI; 2002-421068/45.  
 XX  
 PT A new peptide derived from venomous saliva of assassin bug, has calcium  
 PT channel blocking activity.  
 XX  
 PS Disclosure; Page 4; 26pp; Japanese.  
 XX  
 CC The invention comprises peptides having calcium channel blocking  
 CC activities which are derived from the venomous saliva of assassin bugs.  
 CC The calcium channel blocking peptides of the invention are useful for

CC treating stenocardia, hypertension, myocarditis, arrhythmia and cerebral  
 CC ischaemia. The present amino acid sequence represents a cone snail w-  
 CC conotoxin peptide  
 XX  
 SQ Sequence 26 AA;  
 Query Match 100.0%; Score 155; DB 5; Length 26;  
 Best Local Similarity 100.0%; Pred. No. 3e-10;  
 Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 CKLKGQSCRKTSYDCSGSGRSGKC 26  
 DB 1 CKLKGQSCRKTSYDCSGSGRSGKC 26  
 RESULT 12  
 ID ABB96790 standard; peptide; 26 AA.  
 AC ABB96790;  
 XX  
 DT 12-JUL-2002 (first entry)  
 XX  
 DE Omega-conopeptide w-SVIB generic toxin sequence.  
 XX  
 KW Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;  
 KW neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;  
 KW antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;  
 KW anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;  
 KW neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;  
 KW stroke; cerebrovascular accident; brain trauma; spinal chord trauma;  
 KW drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;  
 KW migraine; inflammation; cardiovascular disorder; psychiatric disorder;  
 KW psychosis; anxiety; schizophrenia.  
 XX  
 OS Conus striatus.  
 XX  
 FH Key Location/Qualifiers  
 FT Misc-difference 13  
 FT /label= OTHER  
 FT /note= "OTHER is Tyr, 125I-Tyr, mono-iodo-Tyr or di-iodo-  
 Tyr or O-sulpho-Tyr or O-Phospho-Tyr"  
 XX  
 PN WO200207675-A2.  
 XX  
 PD 31-JAN-2002.  
 XX  
 PF 23-JUL-2001; 2001WO-US023041.  
 XX  
 PR 21-JUL-2000; 2000US-0219616P.  
 PR 05-FEB-2001; 2001US-0265888P.  
 XX  
 XX (UTAH ) UNIV UTAH RES FOUND.  
 PA (COGN-) COGNETIX INC.  
 XX  
 PI Olivera BM, McIntosh JM, Watkins M, Garrett JE, Shon K;  
 PI Jacobsen R, Jones RM, Cartier GE;  
 XX  
 DR WPI; 2002-257318/30.  
 XX  
 PT New omega-conopeptides useful for treating disorders associated with  
 PT voltage gated ion channels e.g. pain, inflammation, neurologic or  
 PT cardiovascular disorders.  
 XX  
 PS Example 2; Page 63; 195pp; English.  
 XX  
 CC The invention relates to isolated omega-conopeptides, nucleic acid  
 CC sequences encoding them, and propeptide sequences. The activity of the  
 CC peptides of the invention may be described as, analgesic, anticonvulsant,  
 CC vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular,  
 CC antiinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary,  
 CC anxiolytic, anxiolytic and neuroleptic. Peptides of the invention act  
 CC by modulating the activity of voltage gated ion channels. They may be

XX The invention relates to isolated omega-conopeptides, nucleic acid  
CC sequences encoding them, and propetide sequences. The activity of the  
CC peptides of the invention may be described as, analgesic, anticonvulsant,  
CC vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular,  
CC antiinflammatory, antimigraine, antidiabetic, tranquiliser, vulnery,

The invention relates to isolated omega-conopeptides, nucleic acid sequences encoding them, and propeptide sequences. The activity of the

CC peptides of the invention may be described as, analgesic, anticonvulsant,  
 CC vasotropic, cardiac, neuroprotective, cerebroprotective, cardiovascular,  
 CC antiinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary,  
 CC antipsychotic, anxiolytic and neuroleptic. Peptides of the invention act  
 CC by modulating the activity of voltage gated ion channels. They may be  
 CC used for treating or preventing disorders associated with voltage gated  
 CC ion channels such as neurological disorders, e.g. seizure (associated  
 CC with epilepsy), neurotoxic injury associated with conditions of hypoxia,  
 CC anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal  
 CC chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic  
 CC events; pain e.g. migraine; inflammation or cardiovascular disorders.  
 CC They may also be used for treating psychiatric disorders e.g. psychosis,  
 CC anxiety or schizophrenia. The analgesic agents of the invention show  
 CC diminished side effects and toxicity, and are non-addictive. The  
 CC sequences given in records ABB96595-ABB96697 represent omega-conopeptide  
 CC propeptide sequences

SQ Sequence 30 AA;

Query Match 91.6%; Score 142; DB 5; Length 30;  
 Best Local Similarity 88.5%; Pred. No. 9.3e-09;  
 Matches 23; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 1 CKLKGQSCRKTSYDCSGSGCRSGKC 26  
 ||||| : |||||  
 Db 4 CKLKGQSCRRTWYDCSGSGCRGRGKC 29

RESULT 15

AAR39628  
 ID AAR39628 standard; peptide; 26 AA.

XX AC AAR39628;

XX DT 25-MAR-2003 (revised)

XX DT 20-DEC-1993 (first entry)

XX DB SNX-202.

XX KW Omega conopeptide; OCT; analgesia; inhibition; voltage-gated;  
 KW calcium channel; neurone; contraction; guinea pig; ileum; MVIIA;  
 KW binding site; toxin; marine; snail; Conus; opiod; chronic pain;  
 KW narcotics.

XX OS Synthetic.

XX FH Key Location/Qualifiers

FT Disulfide-bond 1..16

FT Disulfide-bond 8..20

FT Disulfide-bond 15..26

FT Modified-site 26

FT /note= "Amidated C-terminal"

XX PN WO9313128-A1.

XX PD 08-JUL-1993.

XX PF 30-DEC-1992; 92WO-US011349.

XX PR 30-DEC-1991; 91US-00814759.

XX PA (NEUR-) NEUREX CORP.

XX PI Justice A, Singh T, Gohil K, Valentino KL, Miljanich GP;

XX DR WPI; 1993-227270/28.

XX PT Use of omega-cono-peptide(s) which selectively inhibit voltage-gated  
 XX calcium channels - to induce analgesia, enhance opiate analgesics, treat  
 XX pain etc.

XX PS Claim 1; Fig 2; 90pp; English.

XX

CC The sequences given in AAR39608-30 are omega conopeptides (OCTs) and  
 CC derivatives of these, which may be used to produce analgesia in a mammal.  
 CC These OCTs inhibit voltage-gated calcium channels selectively in neuronal  
 CC tissue. This is shown by the peptides ability to stimulate contraction in  
 CC guinea pig ileum and to bind to OCT MVIIA binding sites present in  
 CC neuronal tissue. OCTs are components of peptide toxins derived from  
 CC marine snails of the genus Conus, and act as calcium channel blockers.  
 CC These OCTs may be used to replace opiods in the treatment of chronic pain  
 CC or to reduce the opiod dosage required. This helps to reduce dependence  
 CC on and tolerance to opiod narcotics. (Updated on 25-MAR-2003 to correct  
 CC PN field.)

XX SQ Sequence 26 AA;

Query Match 87.1%; Score 135; DB 2; Length 26;  
 Best Local Similarity 84.6%; Pred. No. 4.9e-08;  
 Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

OY 1 CKLKGQSCRKTSYDCSGSGCRSGKC 26  
 ||||| : |||||  
 Db 1 CKLKGQSCSRLMYDCSGSGCRSGKC 26

Search completed: March 23, 2005, 00:03:04  
 Job time : 84.0924 secs

Result No.	Score	Query		DB	ID	Description
		Match	Length			
1	155	100.0	26	1	US-07-789-913-8	Sequence 8, Appli
2	155	100.0	26	1	US-08-049-794-8	Sequence 8, Appli
3	155	100.0	26	1	US-08-496-847-8	Sequence 8, Appli
4	155	100.0	26	2	US-08-742-774-8	Sequence 8, Appli
5	155	100.0	26	2	US-08-675-354-8	Sequence 8, Appli
6	155	100.0	26	2	US-08-965-918-8	Sequence 8, Appli
7	155	100.0	26	2	US-09-138-439-8	Sequence 8, Appli
8	155	100.0	26	3	US-08-613-400A-8	Sequence 8, Appli
9	155	100.0	26	3	US-09-298-017-8	Sequence 8, Appli
10	155	100.0	26	3	US-09-392-979A-8	Sequence 8, Appli
11	135	87.1	26	1	US-07-789-913-19	Sequence 19, Appl
12	135	87.1	26	1	US-08-049-794-19	Sequence 19, Appl
13	135	87.1	26	1	US-08-496-847-19	Sequence 19, Appl
14	135	87.1	26	2	US-08-742-774-19	Sequence 19, Appl
15	135	87.1	26	2	US-08-675-354-19	Sequence 19, Appl
16	135	87.1	26	2	US-08-965-918-19	Sequence 19, Appl
17	135	87.1	26	2	US-09-138-439-19	Sequence 19, Appl
18	135	87.1	26	3	US-08-613-400A-19	Sequence 19, Appl
19	135	87.1	26	3	US-09-298-017-19	Sequence 19, Appl
20	135	87.1	26	3	US-09-392-979A-19	Sequence 19, Appl
21	128	82.6	26	1	US-08-092-215-3	Sequence 3, Appli
22	127	81.9	26	1	US-08-049-794-21	Sequence 21, Appl
23	127	81.9	26	1	US-08-496-847-21	Sequence 21, Appl
24	127	81.9	26	2	US-08-742-774-21	Sequence 21, Appl
25	127	81.9	26	2	US-08-675-354-21	Sequence 21, Appl
26	127	81.9	26	2	US-08-965-918-21	Sequence 21, Appl
27	127	81.9	26	2	US-09-138-439-21	Sequence 21, Appl

```
; ANTI-SENSE: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: SNX-183
US-07-789-913-8
Query Match 100.0%; Score 155; DB 1; Length 26;
Best Local Similarity 100.0%; Pred. No. 2e-10;
Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKLKGQSCRKTSYDCGSGSGRSGKC 26
| | | | | | | | | | | | | | | | | | | | | | | | | |
DB 1 CKLKGQSCRKTSYDCGSGSGRSGKC 26
| | | | | | | | | | | | | | | | | | | | | | | | | |

RESULT 2
US-08-049-794-8
; Sequence 8, Application US/08049794
; Patent No. 5587454
; GENERAL INFORMATION:
; APPLICANT: JUSTICE, ALAN
; APPLICANT: SINGH, TEJINDER
; APPLICANT: GOHIL, KISHOR C
; APPLICANT: VALENTINO, KAREN L
; APPLICANT: MILJANICH, GEORGE P
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA
; NUMBER OF SEQUENCES: 34
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Law Offices of Peter Dehlinger
; STREET: 350 Cambridge Avenue, Suite 300
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/049,794
; FILING DATE: 19930415
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/814,759
; FILING DATE: 30-DEC-1991
; ATTORNEY/AGENT INFORMATION:
; NAME: Stratford, Carol A.
; REGISTRATION NUMBER: 34,444
; REFERENCE/DOCKET NUMBER: 5865-0009.30
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (415) 324-0880
; TELEFAX: (415) 324-0960
; INFORMATION FOR SEQ ID NO: 8:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 26 amino acids
; TYPE: AMINO ACID
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: SVIB/SNX-183, FIGURE 1
US-08-049-794-8
Query Match 100.0%; Score 155; DB 1; Length 26;
Best Local Similarity 100.0%; Pred. No. 2e-10;
Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKLKGQSCRKTSYDCGSGSGRSGKC 26
| | | | | | | | | | | | | | | | | | | | | | | | | |
DB 1 CKLKGQSCRKTSYDCGSGSGRSGKC 26
| | | | | | | | | | | | | | | | | | | | | | | | | |

RESULT 3
US-08-496-847-8
; Sequence 8, Application US/08496847
; Patent No. 5795864
; GENERAL INFORMATION:
; APPLICANT: Amstutz, Gary A.
; APPLICANT: Bowersox, Stephen S.
; APPLICANT: Gohil, Kishorchandra
; APPLICANT: Adriaenssens, Peter I.
; APPLICANT: Kristipati, Ramasharma
; TITLE OF INVENTION: METHODS AND
; TITLE OF INVENTION: FORMULATIONS FOR PREVENTING PROGRESSION OF NEUROPATHIC PAIN
; NUMBER OF SEQUENCES: 36
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Dehlinger & Associates
; STREET: 350 Cambridge Avenue, Suite 250
; CITY: Palo Alto
; STATE: CA
; COUNTRY: US
; ZIP: 94306-1546
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette
; COMPUTER: IBM Compatible
; OPERATING SYSTEM: DOS
; SOFTWARE: FastSeq for Windows Version 2.0
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/496,847
; FILING DATE: 27-JUN-1995
; CLASSIFICATION: 514
; ATTORNEY/AGENT INFORMATION:
; NAME: Stratford, Carol A.
; REGISTRATION NUMBER: 34,444
; REFERENCE/DOCKET NUMBER: 5865-0009.31
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650-324-0880
; TELEFAX: 650-324-0960
; INFORMATION FOR SEQ ID NO: 8:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 26 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: SVIB/SNX-183, FIGURE 1
US-08-496-847-8
Query Match 100.0%; Score 155; DB 1; Length 26;
Best Local Similarity 100.0%; Pred. No. 2e-10;
Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKLKGQSCRKTSYDCGSGSGRSGKC 26
| | | | | | | | | | | | | | | | | | | | | | | | | |
DB 1 CKLKGQSCRKTSYDCGSGSGRSGKC 26
| | | | | | | | | | | | | | | | | | | | | | | | | |

RESULT 4
US-08-742-774-8
; Sequence 8, Application US/08742774
; Patent No. 5824645
; GENERAL INFORMATION:
; APPLICANT: JUSTICE, ALAN
; APPLICANT: SINGH, TEJINDER
; APPLICANT: GOHIL, KISHOR C
; APPLICANT: VALENTINO, KAREN L
; APPLICANT: MILJANICH, GEORGE P
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND
; TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA
; NUMBER OF SEQUENCES: 34
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Law Offices of Peter Dehlinger
; STREET: 350 Cambridge Avenue, Suite 300
; CITY: Palo Alto
```



STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/742,774  
FILING DATE:  
CLASSIFICATION:  
PRIOR APPLICATION DATA: 08/675,354  
FILING DATE: 03-JUL-1996  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 1993-APR-15  
APPLICATION NUMBER: US 07/814,759  
FILING DATE: 30-DEC-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 8:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 26 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: SVIB/SNX-183, FIGURE 1  
US-08-742-774-8  
Query Match 100.0%; Score 155; DB 2; Length 26;  
Best Local Similarity 100.0%; Pred. No. 2e-10;  
Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CKLKQSCRTSYDCSCGSGSGK 26  
DB 1 CKLKQSCRTSYDCSCGSGSGK 26  
RESULT 5  
US-08-675-354-8  
Sequence 8, Application US/08675354  
Patent No. 5859186  
GENERAL INFORMATION:  
APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/675,354

FILING DATE: 03-JUL-1996  
CLASSIFICATION: 530  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 1993-APR-15  
APPLICATION NUMBER: US 07/814,759  
FILING DATE: 30-DEC-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 8:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 26 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: SVIB/SNX-183, FIGURE 1  
US-08-675-354-8  
Query Match 100.0%; Score 155; DB 2; Length 26;  
Best Local Similarity 100.0%; Pred. No. 2e-10;  
Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CKLKQSCRTSYDCSCGSGSGK 26  
DB 1 CKLKQSCRTSYDCSCGSGSGK 26  
RESULT 6  
US-08-965-918-8  
Sequence 8, Application US/08965918  
Patent No. 5891849  
GENERAL INFORMATION:  
APPLICANT: Amstutz, Gary A.  
APPLICANT: Bowersox, Stephen S.  
APPLICANT: Gohil, Kishorchandra  
APPLICANT: Adriaenssens, Peter I.  
TITLE OF INVENTION: METHODS AND FORMULATIONS FOR PREVENTING  
TITLE OF INVENTION: PROGRESSION OF NEUROPATHIC PAIN  
NUMBER OF SEQUENCES: 36  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Dehlinger & Associates  
STREET: 350 Cambridge Avenue, Suite 250  
CITY: Palo Alto  
STATE: CA  
COUNTRY: US  
ZIP: 94306-1546  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: DOS  
SOFTWARE: FastSeq for Windows Version 2.0  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/965,918  
FILING DATE: 07-NOV-1997  
CLASSIFICATION: 514  
ATTORNEY/AGENT INFORMATION:  
NAME: Mohr, Judy M.  
REGISTRATION NUMBER: 38,563  
REFERENCE/DOCKET NUMBER: 5865-0009.34  
TELEPHONE: 650-324-0880  
TELEFAX: 650-324-0960  
INFORMATION FOR SEQ ID NO: 8:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 26 amino acids

TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:

INDIVIDUAL ISOLATE: SVIB/SNX-183, FIGURE 1  
US-08-965-918-8

Query Match 100.0%; Score 155; DB 2; Length 26;  
Best Local Similarity 100.0%; Pred. No. 2e-10;  
Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CKLKGQSCRKTSYDCCSGSGCRSGKC 26  
Db 1 CKLKGQSCRKTSYDCCSGSGCRSGKC 26

## RESULT 7

US-09-138-439-8  
Sequence 8, Application US/09138439  
Patent No. 5954305  
GENERAL INFORMATION:

APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:

ADDRESSER: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306

COMPUTER READABLE FORM:  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/09/138,439  
FILING DATE:

## CLASSIFICATION:

PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 1993-04-15  
APPLICATION NUMBER: US 07/814,759

FILING DATE: 30-DEC-1991  
ATTORNEY/AGENT INFORMATION:

NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELECOMMUNICATION INFORMATION:

TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960

INFORMATION FOR SEQ ID NO: 8:

## SEQUENCE CHARACTERISTICS:

LENGTH: 26 amino acids  
TYPE: amino acid

TOPOLOGY: linear  
MOLECULE TYPE: protein

HYPOTHETICAL: NO

ORIGINAL SOURCE:

INDIVIDUAL ISOLATE: SVIB/SNX-183, FIGURE 1  
US-09-138-439-8

Query Match 100.0%; Score 155; DB 2; Length 26;  
Best Local Similarity 100.0%; Pred. No. 2e-10;  
Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CKLKGQSCRKTSYDCCSGSGCRSGKC 26  
Db 1 CKLKGQSCRKTSYDCCSGSGCRSGKC 26

## RESULT 8

US-08-613-400A-8  
Sequence 8, Application US/08613400A  
Patent No. 6054429  
GENERAL INFORMATION:

APPLICANT: Bowersox, S. Scott  
APPLICANT: Gadbois, Theresa  
APPLICANT: Pettus, Mark, R.  
APPLICANT: Luther, Robert, R.  
TITLE OF INVENTION: IMPROVED EPIDURAL  
TITLE OF INVENTION: METHOD OF PRODUCING ANALGESIA  
NUMBER OF SEQUENCES: 36  
CORRESPONDENCE ADDRESS:

ADDRESSER: Dehlinger & Associates  
STREET: 350 Cambridge Avenue, Suite 250  
CITY: Palo Alto  
STATE: CA  
COUNTRY: US  
ZIP: 94306-1546

COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM Compatible

OPERATING SYSTEM: DOS

SOFTWARE: FastSeq for Windows Version 2.0  
CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/613,400A  
FILING DATE: 08-MAR-1996  
CLASSIFICATION: 514

PRIOR APPLICATION DATA:

APPLICATION NUMBER:

FILING DATE:

ATTORNEY/AGENT INFORMATION:

NAME: Stratford, Carol A.

REGISTRATION NUMBER: 34,444

REFERENCE/DOCKET NUMBER: 5865-0019

TELECOMMUNICATION INFORMATION:

TELEPHONE: 650-324-0880

TELEFAX: 650-324-0960

INFORMATION FOR SEQ ID NO: 8:

## SEQUENCE CHARACTERISTICS:

LENGTH: 26 amino acids

TYPE: amino acid

TOPOLOGY: linear

MOLECULE TYPE: protein

HYPOTHETICAL: NO

ORIGINAL SOURCE:

INDIVIDUAL ISOLATE: SVIB/SNX-183, FIGURE 1  
US-08-613-400A-8

## Query Match

Best Local Similarity 100.0%; Score 155; DB 3; Length 26;  
Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CKLKGQSCRKTSYDCCSGSGCRSGKC 26  
Db 1 CKLKGQSCRKTSYDCCSGSGCRSGKC 26

## RESULT 9

US-09-298-017-8  
Sequence 8, Application US/09298017  
Patent No. 6087091  
GENERAL INFORMATION:

APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER

APPLICANT: GOHIL, KISHOR C

APPLICANT: VALENTINO, KAREN L

APPLICANT: MILJANICH, GEORGE P

```
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND
; NUMBER OF SEQUENCES: 34
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Law Offices of Peter Dehlinger
; STREET: 350 Cambridge Avenue, Suite 300
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/298,017
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 08/049,794
; FILING DATE:
; ATTORNEY/AGENT INFORMATION:
; NAME: Stratford, Carol A.
; REGISTRATION NUMBER: 34,444
; REFERENCE/DOCKET NUMBER: 5865-0009.30
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (415) 324-0960
; TELEFAX: (415) 324-0960
; INFORMATION FOR SEQ ID NO: 8:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 26 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: SVIB/SNX-183, FIGURE 1
; US-09-298-017-8
;
; Query Match 100.0%; Score 155; DB 3; Length 26;
; Best Local Similarity 100.0%; Pred. No. 2e-10;
; Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
;
; QY 1 CKLKGQSCRKTSYDCSGSGRSGKC 26
; | | | | | | | | | | | | | | | | | | | | | | | |
; Db 1 CKLKGQSCRKTSYDCSGSGRSGKC 26
;
; RESULT 10
; US-09-392-979A-8
; Sequence 8, Application US/09392979A
; Patent No. 6136786
; GENERAL INFORMATION:
; APPLICANT: JUSTICE, ALAN
; APPLICANT: SINGH, TEJINDER
; APPLICANT: GOHIL, KISHOR C
; APPLICANT: VALENTINO, KAREN L
; APPLICANT: MILJANICH, GEORGE P
; TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND
; NUMBER OF SEQUENCES: 34
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Law Offices of Peter Dehlinger
; STREET: 350 Cambridge Avenue, Suite 300
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/789,913
; FILING DATE: 19911112
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/561,766
; FILING DATE: 02-AUG-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/440,094
; FILING DATE: 22-NOV-1989
```

```
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/392,979A
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US/08/049,794
; FILING DATE: 1993-04-15
; APPLICATION NUMBER: US 07/814,759
; FILING DATE: 30-DEC-1991
; ATTORNEY/AGENT INFORMATION:
; NAME: Stratford, Carol A.
; REGISTRATION NUMBER: 34,444
; REFERENCE/DOCKET NUMBER: 5865-0009.30
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (415) 324-0880
; TELEFAX: (415) 324-0960
; INFORMATION FOR SEQ ID NO: 8:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 26 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: SVIB/SNX-183, FIGURE 1
; US-09-392-979A-8
;
; Query Match 100.0%; Score 155; DB 3; Length 26;
; Best Local Similarity 100.0%; Pred. No. 2e-10;
; Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
;
; QY 1 CKLKGQSCRKTSYDCSGSGRSGKC 26
; | | | | | | | | | | | | | | | | | | | | | | | |
; Db 1 CKLKGQSCRKTSYDCSGSGRSGKC 26
;
; RESULT 11
; US-07-789-913-19
; Sequence 19, Application US/07789913
; Patent No. 5559095
; GENERAL INFORMATION:
; APPLICANT: Miljanich, George P.
; APPLICANT: Bowersox, Stephen S.
; APPLICANT: Fox, James A.
; APPLICANT: Valentino, Karen L.
; APPLICANT: Bitner, Robert S.
; APPLICANT: Yamashiro, Donald H.
; TITLE OF INVENTION: Delayed Treatment Method of Reducing
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Law Offices of Peter Dehlinger
; STREET: 350 Cambridge Avenue, Suite 300
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/789,913
; FILING DATE: 19911112
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/561,766
; FILING DATE: 02-AUG-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/440,094
; FILING DATE: 22-NOV-1989
```

ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0005.30  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 19:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 26 amino acids  
TYPE: AMINO ACID  
TOPOLOGY: both  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ANTI-SENSE: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: SNX-202  
US-07-789-913-19

Query Match 87.1%; Score 135; DB 1; Length 26;  
Best Local Similarity 84.6%; Pred. No. 2.8e-08;  
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 CKLKGQSCRTSYDCCSGSGRSGKC 26  
Db 1 CKLKGQSCRLMYDCCSGSGRSGKC 26

## RESULT 12

US-08-049-794-19  
Sequence 19, Application US/08049794  
Patent No. 5587454

## GENERAL INFORMATION:

APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
ENHANCING OPIATE ANALGESIA  
NUMBER OF SEQUENCES: 34  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 19930415  
CLASSIFICATION: 514

PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/814,759  
FILING DATE: 30-DEC-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 19:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 26 amino acids  
TYPE: AMINO ACID  
TOPOLOGY: linear  
MOLECULE TYPE: protein

HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: SNX-202, FIGURE 2  
US-08-049-794-19

Query Match 87.1%; Score 135; DB 1; Length 26;  
Best Local Similarity 84.6%; Pred. No. 2.8e-08;  
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 CKLKGQSCRTSYDCCSGSGRSGKC 26  
Db 1 CKLKGQSCRLMYDCCSGSGRSGKC 26

## RESULT 13

US-08-496-847-19  
Sequence 19, Application US/08496847  
Patent No. 5795864

## GENERAL INFORMATION:

APPLICANT: Amstutz, Gary A.  
APPLICANT: Bowersox, Stephen S.  
APPLICANT: Gohil, Kishorchandra  
APPLICANT: Adriaenssens, Peter I.  
APPLICANT: Kristipati, Ramasharma  
TITLE OF INVENTION: METHODS AND  
FORMULATIONS FOR PREVENTING PROGRESSION OF NEUROPATHIC PAIN  
NUMBER OF SEQUENCES: 36  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Dehlinger & Associates  
STREET: 350 Cambridge Avenue, Suite 250  
CITY: Palo Alto  
STATE: CA  
COUNTRY: US  
ZIP: 94306-1546

COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: DOS  
SOFTWARE: FastSeq for Windows Version 2.0  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/496,847  
FILING DATE: 27-JUN-1995  
CLASSIFICATION: 514

ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.31  
TELEPHONE: 650-324-0880  
TELEFAX: 650-324-0960  
INFORMATION FOR SEQ ID NO: 19:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 26 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: SNX-202, FIGURE 2  
US-08-496-847-19

Query Match 87.1%; Score 135; DB 1; Length 26;  
Best Local Similarity 84.6%; Pred. No. 2.8e-08;  
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 CKLKGQSCRTSYDCCSGSGRSGKC 26  
Db 1 CKLKGQSCRLMYDCCSGSGRSGKC 26

## RESULT 14

US-08-742-774-19  
Sequence 19, Application US/08742774

Patent No. 5824645  
GENERAL INFORMATION:  
APPLICANT: JUSTICE, ALAN  
APPLICANT: SINGH, TEJINDER  
APPLICANT: GOHIL, KISHOR C  
APPLICANT: VALENTINO, KAREN L  
APPLICANT: MILJANICH, GEORGE P  
TITLE OF INVENTION: METHODS OF PRODUCING ANALGESIA AND  
NUMBER OF INVENTION: 34  
TITLE OF INVENTION: ENHANCING OPIATE ANALGESIA  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/742,774  
FILING DATE: 03-JUL-1996  
CLASSIFICATION: 530  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 1993-APR-15  
APPLICATION NUMBER: US 07/814,759  
FILING DATE: 1993-APR-15  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 19:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 26 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: SNX-202, FIGURE 2  
US-08-742-774-19

Query Match 87.1%; Score 135; DB 2; Length 26;  
Best Local Similarity 84.6%; Pred. No. 2.8e-08;  
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;  
QY 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26  
Db 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26

Search completed: March 23, 2005, 00:20:49  
Job time : 21.0231 secs

US-08-675-354-19  
Query Match 87.1%; Score 135; DB 2; Length 26;  
Best Local Similarity 84.6%; Pred. No. 2.8e-08;  
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;  
QY 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26  
Db 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26

Search completed: March 23, 2005, 00:20:49  
Job time : 21.0231 secs

US-08-675-354-19  
Query Match 87.1%; Score 135; DB 2; Length 26;  
Best Local Similarity 84.6%; Pred. No. 2.8e-08;  
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;  
QY 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26  
Db 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26

Search completed: March 23, 2005, 00:20:49  
Job time : 21.0231 secs

US-08-675-354-19  
Query Match 87.1%; Score 135; DB 2; Length 26;  
Best Local Similarity 84.6%; Pred. No. 2.8e-08;  
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;  
QY 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26  
Db 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26

Search completed: March 23, 2005, 00:20:49  
Job time : 21.0231 secs

US-08-675-354-19  
Query Match 87.1%; Score 135; DB 2; Length 26;  
Best Local Similarity 84.6%; Pred. No. 2.8e-08;  
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;  
QY 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26  
Db 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26

Search completed: March 23, 2005, 00:20:49  
Job time : 21.0231 secs

CORRESPONDENCE ADDRESS:  
ADDRESSEE: Law Offices of Peter Dehlinger  
STREET: 350 Cambridge Avenue, Suite 300  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/675,354  
FILING DATE: 03-JUL-1996  
CLASSIFICATION: 530  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/08/049,794  
FILING DATE: 1993-APR-15  
APPLICATION NUMBER: US 07/814,759  
FILING DATE: 1993-APR-15  
ATTORNEY/AGENT INFORMATION:  
NAME: Stratford, Carol A.  
REGISTRATION NUMBER: 34,444  
REFERENCE/DOCKET NUMBER: 5865-0009.30  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 324-0880  
TELEFAX: (415) 324-0960  
INFORMATION FOR SEQ ID NO: 19:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 26 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: SNX-202, FIGURE 2  
US-08-675-354-19

Query Match 87.1%; Score 135; DB 2; Length 26;  
Best Local Similarity 84.6%; Pred. No. 2.8e-08;  
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;  
QY 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26  
Db 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26

Search completed: March 23, 2005, 00:20:49  
Job time : 21.0231 secs

US-08-675-354-19  
Query Match 87.1%; Score 135; DB 2; Length 26;  
Best Local Similarity 84.6%; Pred. No. 2.8e-08;  
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;  
QY 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26  
Db 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26

Search completed: March 23, 2005, 00:20:49  
Job time : 21.0231 secs

US-08-675-354-19  
Query Match 87.1%; Score 135; DB 2; Length 26;  
Best Local Similarity 84.6%; Pred. No. 2.8e-08;  
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;  
QY 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26  
Db 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26

Search completed: March 23, 2005, 00:20:49  
Job time : 21.0231 secs

US-08-675-354-19  
Query Match 87.1%; Score 135; DB 2; Length 26;  
Best Local Similarity 84.6%; Pred. No. 2.8e-08;  
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;  
QY 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26  
Db 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26

Search completed: March 23, 2005, 00:20:49  
Job time : 21.0231 secs

**This Page Blank (uspto)**

GenCore version 5.1.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 23:46:47 ; Search time 59.2937 Seconds  
(without alignments)  
144.941 Million cell updates/sec

Title: US-09-787-082A-14  
Perfect score: 155  
Sequence: 1 CKLKQSCRKYSYDCSSGSGRGKC 26

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1401741 seqs, 330541175 residues

Total number of hits satisfying chosen parameters: 1401741

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : Published Applications AA.\*  
1: /cgn2\_6/ptodata/2/pubpaa/US07\_PUBCOMB.pep.\*  
2: /cgn2\_6/ptodata/2/pubpaa/US06\_NEW\_PUB.pep.\*  
3: /cgn2\_6/ptodata/2/pubpaa/US06\_NEW\_PUB.pep.\*  
4: /cgn2\_6/ptodata/2/pubpaa/US06\_PUBCOMB.pep.\*  
5: /cgn2\_6/ptodata/2/pubpaa/US07\_NEW\_PUB.pep.\*  
6: /cgn2\_6/ptodata/2/pubpaa/PCTUS\_PUBCOMB.pep.\*  
7: /cgn2\_6/ptodata/2/pubpaa/US08\_NEW\_PUB.pep.\*  
8: /cgn2\_6/ptodata/2/pubpaa/US08\_PUBCOMB.pep.\*  
9: /cgn2\_6/ptodata/2/pubpaa/US09A\_PUBCOMB.pep.\*  
10: /cgn2\_6/ptodata/2/pubpaa/US09B\_PUBCOMB.pep.\*  
11: /cgn2\_6/ptodata/2/pubpaa/US09C\_PUBCOMB.pep.\*  
12: /cgn2\_6/ptodata/2/pubpaa/US09\_NEW\_PUB.pep.\*  
13: /cgn2\_6/ptodata/2/pubpaa/US10A\_PUBCOMB.pep.\*  
14: /cgn2\_6/ptodata/2/pubpaa/US10B\_PUBCOMB.pep.\*  
15: /cgn2\_6/ptodata/2/pubpaa/US10C\_PUBCOMB.pep.\*  
16: /cgn2\_6/ptodata/2/pubpaa/US10D\_PUBCOMB.pep.\*  
17: /cgn2\_6/ptodata/2/pubpaa/US10\_NEW\_PUB.pep.\*  
18: /cgn2\_6/ptodata/2/pubpaa/US11\_NEW\_PUB.pep.\*  
19: /cgn2\_6/ptodata/2/pubpaa/US60\_NEW\_PUB.pep.\*  
20: /cgn2\_6/ptodata/2/pubpaa/US60\_PUBCOMB.pep.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	147	94.8	26	10	US-09-910-082A-268
2	147	94.8	26	16	US-10-765-926-268
3	142	91.6	26	10	US-09-910-082A-395
4	142	91.6	26	16	US-10-765-926-395
5	142	91.6	30	10	US-09-910-082A-257
6	142	91.6	30	16	US-10-765-926-257
7	134	86.5	26	10	US-09-910-082A-258
8	134	86.5	26	16	US-10-765-926-258
9	115.5	74.5	25	10	US-09-910-082A-408
10	115.5	74.5	25	16	US-10-765-926-408
11	115.5	74.5	71	10	US-09-910-082A-292
12	115.5	74.5	71	16	US-10-765-926-292
13	111.5	71.9	25	10	US-09-910-082A-333

14	111.5	71.9	25	16	US-10-765-926-333	Sequence 333, App
15	111.5	71.9	26	10	US-09-910-082A-70	Sequence 70, Appl
16	111.5	71.9	26	16	US-10-765-926-70	Sequence 70, Appl
17	110.5	71.3	25	10	US-09-910-082A-332	Sequence 332, App
18	110.5	71.3	25	16	US-10-765-926-332	Sequence 332, App
19	110.5	71.3	71	10	US-09-910-082A-65	Sequence 65, Appl
20	110.5	71.3	71	16	US-10-765-926-65	Sequence 65, Appl
21	109.5	70.6	25	10	US-09-910-082A-344	Sequence 344, App
22	109.5	70.6	25	16	US-10-765-926-344	Sequence 344, App
23	109.5	70.6	71	10	US-09-910-082A-112	Sequence 112, App
24	109.5	70.6	71	16	US-10-765-926-112	Sequence 112, App
25	107.5	69.4	25	10	US-09-910-082A-293	Sequence 293, App
26	107.5	69.4	25	16	US-10-765-926-293	Sequence 293, App
27	105.5	68.1	25	10	US-09-910-082A-402	Sequence 402, App
28	105.5	68.1	25	16	US-10-765-926-402	Sequence 402, App
29	105.5	68.1	71	10	US-09-910-082A-313	Sequence 313, App
30	105.5	68.1	71	16	US-10-765-926-313	Sequence 313, App
31	103.5	66.8	25	10	US-09-910-082A-71	Sequence 71, Appl
32	103.5	66.8	25	16	US-09-910-082A-348	Sequence 348, App
33	103.5	66.8	25	10	US-10-765-926-71	Sequence 71, Appl
34	103.5	66.8	25	16	US-10-765-926-348	Sequence 348, App
35	103.5	66.8	71	10	US-09-910-082A-88	Sequence 88, Appl
36	103.5	66.8	71	16	US-10-765-926-88	Sequence 88, Appl
37	102.5	66.1	25	10	US-09-910-082A-66	Sequence 66, Appl
38	102.5	66.1	25	16	US-10-765-926-66	Sequence 66, Appl
39	101.5	65.5	25	10	US-09-910-082A-113	Sequence 113, App
40	101.5	65.5	25	16	US-09-910-082A-197	Sequence 197, App
41	101.5	65.5	25	10	US-09-910-082A-403	Sequence 403, App
42	101.5	65.5	25	16	US-10-765-926-113	Sequence 113, App
43	101.5	65.5	25	10	US-09-910-082A-197	Sequence 197, App
44	101.5	65.5	25	16	US-10-765-926-403	Sequence 403, App
45	101.5	65.5	71	10	US-09-910-082A-270	Sequence 270, App

ALIGNMENTS

RESULT 1

US-09-910-082A-268  
; Sequence 268, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 268  
; LENGTH: 26  
; TYPE: PPT  
; ORGANISM: Conus striatus  
; FEATURES:  
; NAME/KEY: PEPTIDE  
; LOCATION: (1)..(26)  
; OTHER INFORMATION: Xaa at residue 13 is Tyr, 125I-Tyr, mono-iodo-Tyr, O  
; OTHER INFORMATION: -sulpho-Tyr or O-phospho-Tyr  
US-09-910-082A-268

Query Match 94.8%; Score 147; DB 10; Length 26;  
 Best Local Similarity 96.2%; Pred. No. 1.8e-09;  
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CKLKGQSCRKTSYDCSGSGRSGKC 26  
 |||||  
 DB 1 CKLKGQSCRKTSYDCSGSGRSGKC 26  
 |||||

## RESULT 2

US-10-765-926-268  
 ; Sequence 268, Application US/10765926  
 ; Publication No. US20040132663A1

; GENERAL INFORMATION:

; APPLICANT: University of Utah Research Foundation

; APPLICANT: Cognetix, Inc.

; APPLICANT: Olivera, Baldomero M.

; APPLICANT: McIntosh, J. Michael

; APPLICANT: Watkins, Maren

; APPLICANT: Garrett, James E.

; APPLICANT: Shon, Ki-Joon

; APPLICANT: Jacobsen, Richard

; APPLICANT: Jones, Robert M.

; APPLICANT: Cartier, G. Edward

; TITLE OF INVENTION: Omega-Conopeptides

; FILE REFERENCE: 2314-241

; CURRENT APPLICATION NUMBER: US/10/765,926

; CURRENT FILING DATE: 2004-01-29

; PRIOR APPLICATION NUMBER: US 09/910,082

; PRIOR FILING DATE: 2001-07-23

; PRIOR APPLICATION NUMBER: US 60/219,616

; PRIOR FILING DATE: 2000-07-21

; PRIOR APPLICATION NUMBER: US 60/265,888

; PRIOR FILING DATE: 2001-02-05

; NUMBER OF SEQ ID NOS: 413

; SOFTWARE: PatentIn version 3.0

; SEQ ID NO 268

; LENGTH: 26

; TYPE: PRT

; ORGANISM: Conus striatus

; FEATURE:

; NAME/KEY: PEPTIDE

; LOCATION: (1)..(26)

; OTHER INFORMATION: Xaa at residue 13 is Tyr, 1251-Tyr, mono-iodo-Tyr,

; OTHER INFORMATION: di-iodo-Tyr, O-sulpho-Tyr or O-phospho-Tyr

US-10-765-926-268

Query Match 94.8%; Score 147; DB 16; Length 26;  
 Best Local Similarity 96.2%; Pred. No. 1.8e-09;  
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CKLKGQSCRKTSYDCSGSGRSGKC 26  
 |||||  
 DB 1 CKLKGQSCRKTSYDCSGSGRSGKC 26  
 |||||

## RESULT 3

US-09-910-082A-395

; Sequence 395, Application US/09910082A

; Publication No. US20030119731A1

; GENERAL INFORMATION:

; APPLICANT: University of Utah Research Foundation

; APPLICANT: Cognetix, Inc.

; APPLICANT: Olivera, Baldomero M.

; APPLICANT: McIntosh, J. Michael

; APPLICANT: Watkins, Maren

; APPLICANT: Garrett, James E.

; APPLICANT: Shon, Ki-Joon

; APPLICANT: Jacobsen, Richard

; APPLICANT: Jones, Robert M.

; APPLICANT: Cartier, G. Edward

; TITLE OF INVENTION: Omega-Conopeptides

; FILE REFERENCE: 2314-241

; CURRENT APPLICATION NUMBER: US/09/910,082A  
 ; CURRENT FILING DATE: 2001-07-23

; PRIOR APPLICATION NUMBER: US 60/219,616

; PRIOR FILING DATE: 2000-07-21

; PRIOR APPLICATION NUMBER: US 60/265,888

; PRIOR FILING DATE: 2001-02-05

; NUMBER OF SEQ ID NOS: 413

; SOFTWARE: PatentIn version 3.0

; SEQ ID NO 395

; LENGTH: 26

; TYPE: PRT

; ORGANISM: Conus striatus

US-09-910-082A-395

Query Match 91.6%; Score 142; DB 10; Length 26;  
 Best Local Similarity 88.5%; Pred. No. 6.4e-09;  
 Matches 23; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 1 CKLKGQSCRKTSYDCSGSGRSGKC 26  
 |||||

DB 1 CKLKGQSCRRTMYDCCSGSGRSGKC 26  
 |||||

## RESULT 4

US-10-765-926-395

; Sequence 395, Application US/10765926

; Publication No. US20040132663A1

; GENERAL INFORMATION:

; APPLICANT: University of Utah Research Foundation

; APPLICANT: Cognetix, Inc.

; APPLICANT: Olivera, Baldomero M.

; APPLICANT: McIntosh, J. Michael

; APPLICANT: Watkins, Maren

; APPLICANT: Garrett, James E.

; APPLICANT: Shon, Ki-Joon

; APPLICANT: Jacobsen, Richard

; APPLICANT: Jones, Robert M.

; APPLICANT: Cartier, G. Edward

; TITLE OF INVENTION: Omega-Conopeptides

; FILE REFERENCE: 2314-241

; CURRENT APPLICATION NUMBER: US/10/765,926

; CURRENT FILING DATE: 2004-01-29

; PRIOR APPLICATION NUMBER: US 09/910,082

; PRIOR FILING DATE: 2001-07-23

; PRIOR APPLICATION NUMBER: US 60/219,616

; PRIOR FILING DATE: 2000-07-21

; PRIOR APPLICATION NUMBER: US 60/265,888

; PRIOR FILING DATE: 2001-02-05

; NUMBER OF SEQ ID NOS: 413

; SOFTWARE: PatentIn version 3.0

; SEQ ID NO 395

; LENGTH: 26

; TYPE: PRT

; ORGANISM: Conus striatus

US-10-765-926-395

Query Match 91.6%; Score 142; DB 16; Length 26;  
 Best Local Similarity 88.5%; Pred. No. 6.4e-09;  
 Matches 23; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 1 CKLKGQSCRKTSYDCSGSGRSGKC 26  
 |||||

DB 1 CKLKGQSCRRTMYDCCSGSGRSGKC 26  
 |||||

## RESULT 5

US-09-910-082A-257

; Sequence 257, Application US/09910082A

; Publication No. US20030119731A1

; GENERAL INFORMATION:

; APPLICANT: University of Utah Research Foundation

; APPLICANT: Cognetix, Inc.

; APPLICANT: Olivera, Baldomero M.



APPLICANT: McIntosh, J. Michael  
APPLICANT: Watkins, Maren  
APPLICANT: Garrett, James E.  
APPLICANT: Shon, Ki-Joon  
APPLICANT: Jacobsen, Richard  
APPLICANT: Jones, Robert M.  
APPLICANT: Cartier, G. Edward  
TITLE OF INVENTION: Omega-Conopeptides  
FILE REFERENCE: 2314-241  
CURRENT APPLICATION NUMBER: US 09/910,082A  
CURRENT FILING DATE: 2001-07-23  
PRIOR APPLICATION NUMBER: US 60/219,616  
PRIOR FILING DATE: 2000-07-21  
PRIOR APPLICATION NUMBER: US 60/265,888  
PRIOR FILING DATE: 2001-02-05  
NUMBER OF SEQ ID NOS: 413  
SOFTWARE: PatentIn version 3.0  
SEQ ID NO 257  
LENGTH: 30  
TYPE: PRT  
ORGANISM: Conus striatus  
US-09-910-082A-257

Query Match 91.6%; Score 142; DB 10; Length 30;  
Best Local Similarity 88.5%; Pred. No. 7.1e-09;  
Matches 23; Conservative 1; Mismatches 2; Indels 0; Gaps 0;  
QY 1 CKLKGQSCRKTSYDCSGSGRRGKC 26  
DB 4 CKLKGQSCRWTYDCSGSGRRGKC 29

RESULT 6  
US-10-765-926-257  
Sequence 257, Application US/10765926  
Publication No. US20040132663A1  
GENERAL INFORMATION:  
APPLICANT: University of Utah Research Foundation  
APPLICANT: Cognetix, Inc.  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Watkins, Maren  
APPLICANT: Garrett, James E.  
APPLICANT: Shon, Ki-Joon  
APPLICANT: Jacobsen, Richard  
APPLICANT: Jones, Robert M.  
APPLICANT: Cartier, G. Edward  
TITLE OF INVENTION: Omega-Conopeptides  
FILE REFERENCE: 2314-241  
CURRENT APPLICATION NUMBER: US/10/765,926  
CURRENT FILING DATE: 2004-01-29  
PRIOR APPLICATION NUMBER: US 09/910,082  
PRIOR FILING DATE: 2001-07-23  
PRIOR APPLICATION NUMBER: US 60/219,616  
PRIOR FILING DATE: 2000-07-21  
PRIOR APPLICATION NUMBER: US 60/265,888  
PRIOR FILING DATE: 2001-02-05  
NUMBER OF SEQ ID NOS: 413  
SOFTWARE: PatentIn version 3.0  
SEQ ID NO 257  
LENGTH: 30  
TYPE: PRT  
ORGANISM: Conus striatus  
US-10-765-926-257

Query Match 91.6%; Score 142; DB 16; Length 30;  
Best Local Similarity 88.5%; Pred. No. 7.1e-09;  
Matches 23; Conservative 1; Mismatches 2; Indels 0; Gaps 0;  
QY 1 CKLKGQSCRKTSYDCSGSGRRGKC 26  
DB 4 CKLKGQSCRWTYDCSGSGRRGKC 29

RESULT 7  
US-09-910-082A-258  
Sequence 258, Application US/09910082A  
Publication No. US20030119731A1  
GENERAL INFORMATION:  
APPLICANT: University of Utah Research Foundation  
APPLICANT: Cognetix, Inc.  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Watkins, Maren  
APPLICANT: Garrett, James E.  
APPLICANT: Shon, Ki-Joon  
APPLICANT: Jacobsen, Richard  
APPLICANT: Jones, Robert M.  
APPLICANT: Cartier, G. Edward  
TITLE OF INVENTION: Omega-Conopeptides  
FILE REFERENCE: 2314-241  
CURRENT APPLICATION NUMBER: US/09/910,082A  
CURRENT FILING DATE: 2001-07-23  
PRIOR APPLICATION NUMBER: US 60/219,616  
PRIOR FILING DATE: 2000-07-21  
PRIOR APPLICATION NUMBER: US 60/265,888  
PRIOR FILING DATE: 2001-02-05  
NUMBER OF SEQ ID NOS: 413  
SOFTWARE: PatentIn version 3.0  
SEQ ID NO 258  
LENGTH: 26  
TYPE: PRT  
ORGANISM: Conus striatus  
FEATURE:  
NAME/KEY: PEPTIDE  
LOCATION: (1)..(26)  
OTHER INFORMATION: Xaa at residue 13 is Tyr, 125I-Tyr, mono-iodo-Tyr, di-iodo-Tyr, O  
US-09-910-082A-258

Query Match 86.5%; Score 134; DB 10; Length 26;  
Best Local Similarity 84.6%; Pred. No. 4.8e-08;  
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;  
QY 1 CKLKGQSCRKTSYDCSGSGRRGKC 26  
DB 1 CKLKGQSCRWTYDCSGSGRRGKC 26

RESULT 8  
US-10-765-926-258  
Sequence 258, Application US/10765926  
Publication No. US20040132663A1  
GENERAL INFORMATION:  
APPLICANT: University of Utah Research Foundation  
APPLICANT: Cognetix, Inc.  
APPLICANT: Olivera, Baldomero M.  
APPLICANT: McIntosh, J. Michael  
APPLICANT: Watkins, Maren  
APPLICANT: Garrett, James E.  
APPLICANT: Shon, Ki-Joon  
APPLICANT: Jacobsen, Richard  
APPLICANT: Jones, Robert M.  
APPLICANT: Cartier, G. Edward  
TITLE OF INVENTION: Omega-Conopeptides  
FILE REFERENCE: 2314-241  
CURRENT APPLICATION NUMBER: US/10/765,926  
CURRENT FILING DATE: 2004-01-29  
PRIOR APPLICATION NUMBER: US 09/910,082  
PRIOR FILING DATE: 2001-07-23  
PRIOR APPLICATION NUMBER: US 60/219,616  
PRIOR FILING DATE: 2000-07-21  
PRIOR APPLICATION NUMBER: US 60/265,888  
PRIOR FILING DATE: 2001-02-05  
NUMBER OF SEQ ID NOS: 413  
SOFTWARE: PatentIn version 3.0

; SEQ ID NO 258  
; LENGTH: 26  
; TYPE: PRT  
; ORGANISM: Conus striatus  
; FEATURE:  
; NAME/KEY: PEPTIDE  
; LOCATION: (1)..(26)  
; OTHER INFORMATION: Xaa at residue 13 is Tyr, 125I-Tyr, mono-iodo-Tyr,  
; OTHER INFORMATION: di-iodo-Tyr, O-sulpho-Tyr or O-phospho-Tyr  
US-10-765-926-258

Query Match 86.5%; Score 134; DB 16; Length 26;  
Best Local Similarity 84.6%; Pred. No. 4.8e-08;  
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 CKLKGQSCRTSYDCSCGSGKGC 26  
|||:|||||:|||||:|||||:|||||  
DB 1 CKLKGQSCRRTWKDCSCGSGRRGKC 26

RESULT 9  
US-09-910-082A-408  
; Sequence 408, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 408  
; LENGTH: 25  
; TYPE: PRT  
; ORGANISM: Conus viola  
US-09-910-082A-408

Query Match 74.5%; Score 115.5; DB 10; Length 25;  
Best Local Similarity 73.1%; Pred. No. 5.1e-06;  
Matches 19; Conservative 4; Mismatches 2; Indels 1; Gaps 1;

QY 1 CKLKGQSCRTSYDCSCGSGKGC 26  
|||:|||||:|||||:|||||:|||||  
DB 1 CKSRGSSCRRTSYDCCTGSC-RNGKC 25

RESULT 10  
US-10-765-926-408  
; Sequence 408, Application US/10765926  
; Publication No. US20040132663A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard

; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/10/765,926  
; PRIOR FILING DATE: 2004-01-29  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 408  
; LENGTH: 25  
; TYPE: PRT  
; ORGANISM: Conus viola  
US-10-765-926-408

Query Match 74.5%; Score 115.5; DB 16; Length 25;  
Best Local Similarity 73.1%; Pred. No. 5.1e-06;  
Matches 19; Conservative 4; Mismatches 2; Indels 1; Gaps 1;

QY 1 CKLKGQSCRTSYDCSCGSGKGC 26  
|||:|||||:|||||:|||||:|||||  
DB 1 CKSRGSSCRRTSYDCCTGSC-RNGKC 25

RESULT 11  
US-09-910-082A-292  
; Sequence 292, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 292  
; LENGTH: 71  
; TYPE: PRT  
; ORGANISM: Conus viola  
US-09-910-082A-292

Query Match 74.5%; Score 115.5; DB 10; Length 71;  
Best Local Similarity 73.1%; Pred. No. 1.1e-05;  
Matches 19; Conservative 4; Mismatches 2; Indels 1; Gaps 1;

QY 1 CKLKGQSCRTSYDCSCGSGKGC 26  
|||:|||||:|||||:|||||:|||||  
DB 46 CKSRGSSCRRTSYDCCTGSC-RNGKC 70

RESULT 12  
US-10-765-926-292  
; Sequence 292, Application US/10765926  
; Publication No. US20040132663A1

GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/10/765,926  
; CURRENT FILING DATE: 2004-01-29  
; PRIOR APPLICATION NUMBER: US 09/910,082  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 292  
; LENGTH: 71  
; TYPE: PRT  
; ORGANISM: Conus viola  
US-10-765-926-292

Query Match 74.5%; Score 115.5; DB 16; Length 71;  
Best Local Similarity 73.1%; Pred. No. 1.1e-05;  
Matches 19; Conservative 4; Mismatches 2; Indels 1; Gaps 1;

QY 1 CKLKQSCRTSYDCCSGCSGSGKC 26  
DB 46 CKSRGSCRTSYDCCGTGSC-RNGKC 70

RESULT 13  
US-09-910-082A-333  
; Sequence 333, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 333  
; LENGTH: 25  
; TYPE: PRT  
; ORGANISM: Conus catus  
US-09-910-082A-333

Query Match 71.9%; Score 111.5; DB 10; Length 25;  
Best Local Similarity 73.1%; Pred. No. 1.4e-05;  
Matches 19; Conservative 3; Mismatches 3; Indels 1; Gaps 1;

QY 1 CKLKQSCRTSYDCCSGCSGSGKC 26  
DB 1 CKSTGASCRRTSYDCCGTGSC-RSGRC 25

RESULT 14  
US-10-765-926-333  
; Sequence 333, Application US/10765926  
; Publication No. US20040132663A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/10/765,926  
; CURRENT FILING DATE: 2004-01-29  
; PRIOR APPLICATION NUMBER: US 09/910,082  
; PRIOR FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 333  
; LENGTH: 25  
; TYPE: PRT  
; ORGANISM: Conus catus  
US-10-765-926-333

Query Match 71.9%; Score 111.5; DB 16; Length 25;  
Best Local Similarity 73.1%; Pred. No. 1.4e-05;  
Matches 19; Conservative 3; Mismatches 3; Indels 1; Gaps 1;

QY 1 CKLKQSCRTSYDCCSGCSGSGKC 26  
DB 1 CKSTGASCRRTSYDCCGTGSC-RSGRC 25

RESULT 15  
US-09-910-082A-70  
; Sequence 70, Application US/09910082A  
; Publication No. US20030119731A1  
; GENERAL INFORMATION:  
; APPLICANT: University of Utah Research Foundation  
; APPLICANT: Cognetix, Inc.  
; APPLICANT: Olivera, Baldomero M.  
; APPLICANT: McIntosh, J. Michael  
; APPLICANT: Watkins, Maren  
; APPLICANT: Garrett, James E.  
; APPLICANT: Shon, Ki-Joon  
; APPLICANT: Jacobsen, Richard  
; APPLICANT: Jones, Robert M.  
; APPLICANT: Cartier, G. Edward  
; TITLE OF INVENTION: Omega-Conopeptides  
; FILE REFERENCE: 2314-241  
; CURRENT APPLICATION NUMBER: US/09/910,082A  
; CURRENT FILING DATE: 2001-07-23  
; PRIOR APPLICATION NUMBER: US 60/219,616  
; PRIOR FILING DATE: 2000-07-21  
; PRIOR APPLICATION NUMBER: US 60/265,888  
; PRIOR FILING DATE: 2001-02-05  
; NUMBER OF SEQ ID NOS: 413  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 70

;  
; LENGTH: 26  
; TYPE: PRT  
; ORGANISM: Conus catus  
US-09-910-082A-70

Query Match 71.9%; Score 111.5; DB 10; Length 26;  
Best Local Similarity 73.1%; Pred. No. 1.4e-05;  
Matches 19; Conservative 3; Mismatches 3; Indels 1; Gaps 1;  
QY 1 CKLKGSCRTSYDCSCGSGKGC 26  
DB 1 CKSTGASCRRTSYDCCTGSC-RSGRC 25

Search completed: March 23, 2005, 00:35:03  
Job time : 59.3652 secs

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:16:20 ; Search time 14.5875 Seconds  
(without alignments)  
171.492 Million cell updates/sec

Title: US-09-787-082A-14  
Perfect score: 155  
Sequence: 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26  
Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues  
Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0  
Maximum DB seq length: 200000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : PIR 79: \*  
1: pir1: \*  
2: pir2: \*  
3: pir3: \*  
4: pir4: \*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	155	100.0	26	2 C44379	omega-conotoxin SV
2	126	81.3	29	2 JH0699	omega-conotoxin MV
3	109.5	70.6	25	2 JH0701	omega-conotoxin MV
4	100.5	64.8	29	2 A58537	omega-conotoxin MV
5	97.5	62.9	25	2 JH0700	omega-conotoxin MV
6	69	44.5	27	2 A58997	kappa-conotoxin PV
7	66.5	42.9	63	2 S08191	metallothionein 2
8	64.5	41.6	73	1 NTKN6G	omega-conotoxin GV
9	63	40.6	63	2 A34484	metallothionein I
10	62.5	40.3	65	2 A38739	metallothionein -
11	62	40.0	52	2 T10299	conotoxin-like pro
12	60.5	39.0	60	1 SMH01A	metallothionein 1A
13	59	38.1	29	2 A43620	omega-conotoxin GV
14	58.5	37.7	43	2 S33382	metallothionein -
15	58.5	37.7	43	2 S18173	metallothionein -
16	58.5	37.7	63	2 A34958	metallothionein -
17	58.5	37.7	63	2 S33381	metallothionein -
18	58.5	37.7	63	2 A34620	metallothionein -
19	58.5	37.7	63	2 C34620	metallothionein -
20	58	37.4	491	2 S52920	disintegrin (EC 3.
21	58	37.4	544	2 S52477	disintegrin (EC 3.
22	57.5	37.1	64	2 A25775	metallothionein A
23	57	36.8	2531	2 T31070	notch homolog - se
24	57	36.8	2703	1 A24420	notch protein - fr
25	56.5	36.5	64	2 A33825	metallothionein A
26	56.5	36.5	66	2 S58086	metallothionein 3
27	56.5	36.5	68	2 I67866	growth inhibitory
28	56.5	36.5	68	2 A46034	metallothionein 3x
29	56	36.1	27	2 S19619	delta-conotoxin Tx

30	56	36.1	72	2 S39419	metallothionein 10
31	56	36.1	78	2 S12513	delta-conotoxin Tx
32	56	36.1	325	2 H71271	hypothetical prote
33	56	36.1	601	2 T22025	hypothetical prote
34	56	36.1	601	2 D89711	protein F40E10.4 I
35	56	36.1	1531	2 T42218	slit-1 protein hom
36	55.5	35.8	43	2 S18174	metallothionein -
37	55.5	35.8	61	1 SMH01A	metallothionein 1A
38	55.5	35.8	68	2 B46034	metallothionein 3,
39	55.5	35.8	68	2 S44392	metallothionein 3
40	55.5	35.8	68	2 JC6521	metallothionein II
41	55.5	35.8	68	2 S44391	metallothionein 3
42	55.5	35.8	152	2 T04140	vacuolar sorting r
43	55	35.5	29	2 A43620	omega-conotoxin GV
44	55	35.5	132	1 T1HUSP	antileukoproteinas
45	55	35.5	2524	2 A35844	Xotch protein - Af

ALIGNMENTS

RESULT 1

C44379  
omega-conotoxin SVIB [validated] - cone shell (Conus striatus)  
N:Alternate names: SNX-183  
C:Species: Conus striatus (striated cone)  
C:Date: 31-Dec-1993 #sequence\_revision 31-Dec-1993 #text\_change 15-Sep-2000  
C:Accession: C44379  
R:Ramilo, C.A.; Zafaralla, G.C.; Nadaodi, L.; Hammerland, L.G.; Yoshikami, D.; Gray, W.R.  
Biochemistry 31, 9919-9926, 1992  
A:Title: Novel alpha- and omega-conotoxins from Conus striatus venom.  
A:Reference number: A44379; MUID:93003172; PMID:1390774  
A:Accession: C44379  
A:Molecule type: protein  
A:Residues: 1-26 <RAM>  
A:Cross-references: CAS:143306-19-8  
A:Experimental source: venom  
A:Note: sequence extracted from NCBI backbone (NCBIP:116002); structure confirmed by chen  
R:Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.  
submitted to the Brookhaven Protein Data Bank, August 1996  
A:Reference number: A67649; PDB:1MWJ  
A:Contents: annotation; conformation by (1)H-NMR, residues 1-26  
R:Nielsen, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.  
J. Mol. Biol. 263, 297-310, 1996  
A:Title: A consensus structure for omega-conotoxins with different selectivities for volt  
A:Reference number: A58619; MUID:97070382; PMID:8913308  
A:Contents: annotation; conformation by (1)H-NMR  
C:Comment: This omega-conotoxin blocks presynaptic calcium channels.  
C:Superfamily: omega-conotoxin  
C:Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inh  
F:1-16,8-20,15-26/Disulfide bonds: #status predicted  
F:26/Modified site: amidated carboxyl end (Cys) #status experimental

Query Match 100.0%; Score 155; DB 2; Length 26;  
Best Local Similarity 100.0%; Pred. No. 3.2e-11;  
Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26

DB 1 CKLKGQSCRKTSYDCSCGSGRSGKC 26

RESULT 2

JH0699  
omega-conotoxin MWIC precursor [validated] - cone shell (Conus magus) (fragment)  
C:Species: Conus magus (magus cone)  
C:Date: 17-Apr-1993 #sequence\_revision 11-Apr-1997 #text\_change 09-Jul-2004  
C:Accession: JH0699; PC2380  
R:Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadaodi, L.; Ramachandran, J.; Mj  
Neuron 9, 69-77, 1992  
A:Title: A new cone peptide ligand for mammalian presynaptic Ca2+ channels.  
A:Reference number: JH0699; MUID:92337922; PMID:1352986  
A:Accession: JH0699

C;Species: Conus magus (magnus cone)  
C;Date: 27-Mar-1997 #sequence\_revision 11-Apr-1997 #text\_change 09-Jul-2004  
C;Accession: A58537  
R;Monje, V.D.; Haack, J.A.; Naisbitt, S.R.; Miljanich, G.; Ramachandran, J.; Naedaeadi, L.  
Neuropharmacology 32, 1141-1149, 1993  
A>Title: A new Conus peptide ligand for Ca channel subtypes.  
A;Reference number: A58537; MUID:94150815; PMID:8107968  
A;Accession: A58537  
A:Molecule type: mRNA  
A;Residues: 1-29 <MON>  
A;Cross-references: UNIPROT-Q26350; GB:S69322; NID:Q545399; PIDN:AAB29902.1; PID:G545400  
A>Note: The predicted peptide was chemically synthesized and alternative disulfide bonds  
C;Superfamily: omega-conotoxin  
C;Keywords: toxin; venom  
F;4-29/Product: omega-conotoxin MWIID #status predicted <MAT>  
F;4-19,11-23,18-28/Disulfide bonds: #status predicted

Query Match            64.8%; Score 100.5; DB 2; Length 29;  
Best Local Similarity     65.4%; Pred. NO. 4.Se-05;  
Matches       17; Conservative      4; Mismatches    4; Indels      1; Gaps      1;

Qy          1 CKLKGSCRTSYDCSGCGRSKGC 26  
             | : ||||| : ||||| : ||||| : ||:  
Db          4 CGRGASCRKTWNCSSGNR-GRC 28

RESULT 5  
JH0700  
omega-conotoxin MVIIIA [validated] - cone shell (Conus magus)

C;Species: Conus magus (magnus cone)  
C;Date: 17-Apr-1993 #sequence\_revision 17-Apr-1993 #text\_change 09-Jul-2004  
C;Accession: JH0700; C60133; A34115  
R:Hillyard, D.R.; Monje, V.D.; Mintz, I.M.; Bean, B.P.; Nadaesdi, L.; Ramachandran, J.; Mi Neuron 9, 69-77, 1992  
A>Title: A new conus peptide ligand for mammalian presynaptic Ca<sup>2+</sup> channels.  
A;Reference number: JH0699; MUID:92337922; PMID:1352986  
A;Status: nucleic acid sequence not shown  
A:Molecule type: mRNA  
A;Residues: 1-25 <HIL>  
A;Cross-references: UNIPROT:P05484  
R;Olivera, B.M.; Gray, W.R.; Zeikus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Santos Science 230, 1338-1343, 1985  
A>Title: Peptide neurotoxins from fish-hunting cone snails.  
A;Reference number: A43620; MUID:86070213; PMID:4071055  
A;Accession: C60133  
A:Molecule type: protein  
A;Residues: 1-25 <OLI>  
R;Olivera, B.M.; Cruz, L.J.; de Santos, V.; LeCheminant, G.W.; Griffin, D.; Zeikus, R.; de Santos Biochemistry 26, 2086-2090, 1987  
A>Title: Neuronal calcium channel antagonists. Discrimination between calcium channel sub A;Reference number: A34115; MUID:87299637; PMID:2441741  
A;Contents: annotation  
E:Nielson, K.J.; Thomas, L.; Lewis, R.J.; Alewood, P.F.; Craik, D.J.  
J. Mol. Biol. 263, 297-310, 1996  
A;Title: A consensus structure for omega-conotoxins with different selectivities for volt A;Reference number: A58619; MUID:97070382; PMID:8913308  
A;Contents: annotation; conformation by (I)H-NMR  
R;Kohn, T.; Kim, J.I.; Kobayashi, K.; Kodera, Y.; Maeda, T.; Sato, K.  
submitted to the Brookhaven Protein Data Bank, April 1995  
A;Reference number: A6296; PDB:IOMG  
A;Contents: annotation; conformation by (I)H-NMR, residues 1-25  
R;Kohn, T.; Kim, J.I.; Kobayashi, K.; Kodera, Y.; Maeda, T.; Sato, K.  
Biochemistry 34, 10256-10265, 1995  
A>Title: Three-dimensional structure in solution of the calcium channel blocker omega-con A;Reference number: A58627; MUID:95367555; PMID:7640281  
A;Contents: annotation; conformation by (I)H-NMR  
C;Superfamily: omega-conotoxin  
C;Keywords: acetylcholine release inhibition; amidated carboxyl end; calcium channel inhib

NTXN6G  
omega-conotoxin GVIB precursor [validated] - cone shell (Conus geographus)  
N;Alternate names: shaker peptide GVIB  
N;Contains: omega-conotoxin GVIA; omega-conotoxin GVIC

metallothionein I - yeast (Candida glabrata)  
C:Species: Candida glabrata  
C:Date: 07-Sep-1990 #sequence\_revision 07-Sep-1990 #text\_change 09-Jul-2004  
C:Accession: A34484  
R:Mehra, R.K.; Garey, J.R.; Butt, T.R.; Gray, W.R.; Winge, D.R.  
J. Biol. Chem. 264, 19747-19753, 1989  
A:Title: Candida glabrata metallothioneins. Cloning and sequence of the genes and characterization of the metallothionein domain.  
A:Reference number: A92737; MUID:90062075; PMID:2584191  
A:Accession: A34484  
A:Molecule type: DNA  
A:Residues: 1-63 <MEH>  
A:Cross-references: UNIPROT:P15113; GB:J05133; NID:g173321; PIDN:AAA35272.1; PID:g173322  
A:Note: the authors translated the codon GAG for residue 61 as Asp  
C:Superfamily: metallothionein

Query Match 40.6%; Score 63; DB:2; Length 63;  
Best Local Similarity 38.2%; Pred. No. 1.2;  
Matches 13; Conservative 1; Mismatches 12; Indels 8; Gaps 1;

QY 1 CKLKGQSCRKTSYDC-----CSGSGCRSGKC 26  
DB 27 CEKKQSGCHGCGEQCKCGSHGSGCHGCGGDKC 60

RESULT 10  
A38739  
metallothionein - sea urchin (Strongylocentrotus purpuratus)  
C:Species: Strongylocentrotus purpuratus (purple urchin)  
C:Date: 13-Sep-1991 #sequence\_revision 13-Sep-1991 #text\_change 09-Jul-2004  
C:Accession: A38739  
R:Nemer, M.; Thornton, R.D.; Stuebing, E.W.; Harlow, P.  
J. Biol. Chem. 266, 6586-6593, 1991  
A:Title: Structure, spatial, and temporal expression of two sea urchin metallothionein genes.  
A:Reference number: A38739; MUID:91177920; PMID:2007604  
A:Accession: A38739  
A:Status: preliminary  
A:Molecule type: DNA  
A:Residues: 1-65 <NEM>  
A:Cross-references: UNIPROT:Q27287; GB:M59822; NID:g161535; PIDN:AAA30062.1; PID:g161536  
C:Superfamily: metallothionein

Query Match 40.3%; Score 62.5; DB:2; Length 65;  
Best Local Similarity 40.7%; Pred. No. 1.4;  
Matches 11; Conservative 3; Mismatches 12; Indels 1; Gaps 1;

QY 1 CKLKGQSCRKTSYDCS-GSGCRSGKC 26  
DB 8 CCKEGNECACTQDCCTIGCKCKGTC 34

RESULT 11  
T10299  
conotoxin-like protein 2 - Orgyia pseudotsugata nuclear polyhedrosis virus  
C:Species: Orgyia pseudotsugata nuclear polyhedrosis virus, OpNPV  
C:Date: 16-Jul-1999 #sequence\_revision 16-Jul-1999 #text\_change 11-May-2000  
C:Accession: T10299  
R:Ahrens, C.A.; Russell, R.R.; Funk, C.J.; Evans, J.; Harwood, S.; Rohrmann, G.F.  
Virology 229, 381-399, 1997  
A:Title: The sequence of the Orgyia pseudotsugata multinucleocapsid nuclear polyhedrosis virus.  
A:Reference number: Z17011; MUID:97271300; PMID:9126251  
A:Accession: T10299  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: DNA  
A:Residues: 1-52 <HR>  
A:Cross-references: EMBL:U75930; NID:g2934903; PID:g1911276

Query Match 40.0%; Score 62; DB:2; Length 52;  
Best Local Similarity 44.4%; Pred. No. 1.4;  
Matches 12; Conservative 6; Mismatches 7; Indels 2; Gaps 2;

QY 1 CKLKGQSCRKTSYDCS-GSGCRSGKC-GKC 26  
DB 24 CVETGRNC-QYSYECGACGACSAAGFC 49

## RESULT 12

SMH01A

metallothionein 1A - horse  
C:Species: Equus caballus (domestic horse)  
C:Date: 31-May-1979 #sequence\_revision 31-May-1979 #text\_change 09-Jul-2004  
C:Accession: A03277  
R:Kojima, Y.; Kagi, J.H.R.  
Trends Biochem. Sci. 3, 90-93, 1978  
A:Title: Metallothionein.  
A:Reference number: A03277  
A:Accession: A03277  
A:Molecule type: protein  
A:Residues: 1-60 <KOJ>  
A:Cross-references: UNIPROT:P02800  
A:Experimental source: liver and kidney  
A:Note: both Ser and Leu occur at position 54  
C:Superfamily: metallothionein  
C:Keywords: acetylated amino end; metal binding  
P:1/Modified site: acetylated amino end (Met) #status experimental  
F:13,15,19,21,24,26,29/binding site: transition metal ions (Cys) #status predicted  
F:33,34,36,37,41,44,48,50,57/binding site: transition metal ions (Cys) #status predicted

Query Match 39.0%; Score 60.5; DB:1; Length 60;

Best Local Similarity 35.9%; Pred. No. 2.2;

Matches 14; Conservative 2; Mismatches 10; Indels 13; Gaps 2;

QY 1 CKLKG---QSCRKTSYDCSGSC-----GRSGKC 26

DB 19 CKKECRCTCKKSCCSCPGGCARCAQCGCVCKGASDKC 57

## RESULT 13

B43620

omega-conotoxin GVIB - cone shell (Conus geographus)  
N:Alternate names: shaker peptide GVIIB

C:Species: Conus geographus (geography cone)

C:Date: 11-Dec-1992 #sequence\_revision 11-Dec-1992 #text\_change 09-Jul-2004

C:Accession: B43620

R:Olivera, B.M.; Gray, W.R.; Zeikus, R.; McIntosh, J.M.; Varga, J.; Rivier, J.; de Santos

Science 230, 1338-1343, 1985

A:Title: Peptide neurotoxins from fish-hunting cone snails.

A:Reference number: A43620; MUID:86070213; PMID:4071055

A:Accession: B43620

A:Molecule type: protein

A:Residues: 1-29 &lt;OLI&gt;

A:Cross-references: UNIPROT:P05483

C:Superfamily: omega-conotoxin

C:Keywords: acetylcholine release inhibition; calcium channel inhibitor; hydroxyproline;

F:1-16,8-19,15-26/Diulfide bonds: #status predicted

F:4,7/Modified site: 4-hydroxyproline (Pro) #status experimental

Query Match

Best Local Similarity 38.1%; Score 59; DB:2; Length 29;

Matches 10; Conservative 2; Mismatches 14; Indels 0; Gaps 0;

QY 1 CKLKGQSCRKTSYDCS-GSGCRSGKC 26

DB 1 CKSPGTPCSRGWRDCTCLSYSNKC 26

## RESULT 14

S33382

metallothionein - ring-necked pheasant (fragment)  
C:Species: Phasianus colchicus (ring-necked pheasant)

C:Date: 13-Jan-1995 #sequence\_revision 13-Jan-1995 #text\_change 20-Aug-1999

C:Accession: S33382; S18182

R:Shartzer, K.L.; Kage, K.; Sobieski, R.J.; Andrews, G.K.

J. Mol. Evol. 36, 255-262, 1993

A:Title: Evolution of avian metallothionein: DNA sequence analyses of the turkey metallothionein.

A:Reference number: S33378; MUID:93247066; PMID:8483164

A:Accession: S33382



A;Status: preliminary  
A;Molecule type: mRNA  
A;Residues: 1-43 <SHA>  
A;Cross-references: EMBL:X62510; NID:G64214; PIDN:CAA44369.1; PID:G64215  
C;Superfamily: metallothionein

Query Match 37.7%; Score 58.5; DB 2; Length 43;  
Best Local Similarity 39.3%; Pred. No. 3;  
Matches 11; Conservative 2; Mismatches 12; Indels 3; Gaps 1;

QY 1 CKLKG---QSCRKTSYDCSGSCGRSGK 25  
|||:||||:  
DB 6 CKCKNCRCRCKRCKSCCPCAGCNCNAK 33

## RESULT 15

S18173  
metallothionein - common bobwhite (fragment)  
C;Species: Colinus virginianus (common bobwhite)  
C;Date: 06-Jan-1995 #sequence\_revision 06-Jan-1995 #text\_change 09-Jul-2004  
C;Accession: S33378; S18173  
R;Shartzel, K.L.; Kage, K.; Sobieski, R.J.; Andrews, G.K.  
J. Mol. Evol. 36, 255-262, 1993  
A;Title: Evolution of avian metallothionein: DNA sequence analyses of the turkey metallothionein  
A;Reference number: S33378; MUID:93247066; PMID:8483164  
A;Accession: S33378  
A;Status: preliminary  
A;Molecule type: mRNA  
A;Residues: 1-43 <SHA>  
A;Cross-references: UNIPROT:P27086; EMBL:X62511; NID:G62749; PIDN:CAA44370.1; PID:G62750  
C;Superfamily: metallothionein

Query Match 37.7%; Score 58.5; DB 2; Length 43;  
Best Local Similarity 39.3%; Pred. No. 3;  
Matches 11; Conservative 2; Mismatches 12; Indels 3; Gaps 1;

QY 1 CKLKG---QSCRKTSYDCSGSCGRSGK 25  
|||:||||:  
DB 6 CKCKNCRCRCKRCKSCCPCAGCNCNAK 33

Search completed: March 22, 2005, 22:54:19  
Job time : 15.5675 secs



GenCore version 5.1.1.6  
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OM protein - protein search, using sw model

Run on: March 22, 2005, 22:45:36 ; Search time 69.4191 Seconds  
(without alignments)  
191.792 Million cell updates/sec

Title: US-09-787-082A-14  
Perfect score: 155  
Sequence: 1 CKLKQSCRKTSYDCSCSGRSGK 26

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : UniProt 03.\*

1: uniprot\_sprot.\*

2: uniprot\_trembl.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match %	Length	DB	ID	Description
1	155	100.0	72	1	CKXB CONST	P28881 conus stria
2	126	81.3	29	1	CKXC_CONMA	P37300 conus magus
3	116	74.8	26	1	CKXC CONCT	P58919 conus catus
4	115.5	74.5	66	2	Q9N633	Q9n633 conus catus
5	115.5	74.5	66	2	Q9NCW3	Q9ncw3 conus catus
6	115.5	74.5	66	2	Q9NCW5	Q9ncw5 conus catus
7	115.5	74.5	66	2	Q9NCW6	Q9ncw6 conus catus
8	111.5	71.9	25	1	CKXB CONCT	P58918 conus catus
9	111.5	71.9	66	2	Q9N625	Q9n625 conus catus
10	111.5	71.9	66	2	Q9N628	Q9n628 conus catus
11	111.5	71.9	66	2	Q9NCV7	Q9ncv7 conus catus
12	111.5	71.9	66	2	Q9NCW2	Q9ncw2 conus catus
13	111.5	71.9	71	1	CKXA CONCT	P58917 conus catus
14	109.5	70.6	25	1	CKXB CONMA	P05485 conus magus
15	108.5	70.0	66	2	Q9NCV5	Q9ncv5 conus catus
16	108.5	70.0	66	2	Q9NCW4	Q9ncw4 conus catus
17	106.5	68.7	66	2	Q9NCV6	Q9ncv6 conus catus
18	106.5	68.7	66	2	Q9NCW1	Q9ncw1 conus catus
19	104.5	67.4	66	2	Q9N6F7	Q9n6f7 conus catus
20	100.5	64.8	29	1	CKXD CONMA	Q26350 conus magus
21	100.5	64.8	66	2	Q9N6F8	Q9n6f8 conus catus
22	100.5	64.8	66	2	Q9NCV9	Q9ncv9 conus catus
23	100.5	64.8	66	2	Q9NCW0	Q9ncw0 conus catus
24	97.5	62.9	66	2	Q9N6N6	Q9n6n6 conus stria
25	97.5	62.9	66	2	Q9NCU1	Q9ncu1 conus stria
26	97.5	62.9	66	2	Q9NCV0	Q9ncv0 conus stria
27	97.5	62.9	66	2	Q9NCV4	Q9ncv4 conus stria
28	97.5	62.9	71	1	CKXA CONMA	P05484 conus stria
29	96.5	62.3	73	1	CKXD CONCT	P58920 conus magus
30	94.5	61.0	66	2	Q9NCV8	Q9ncv8 conus catus
31	92.5	59.7	66	2	Q9NCV1	Q9ncv1 conus stria

32	92.5	59.7	66	2	Q9NCV2	Q9ncv2 conus stria
33	92.5	59.7	66	2	Q9NCV3	Q9ncv3 conus stria
34	92.5	59.7	71	1	CKX3 CONST	Q9xzk2 conus stria
35	85.5	55.2	27	1	CKX7 CONCN	P58916 conus conso
36	69	44.5	27	1	CKX6 CONRA	P58914 conus radia
37	69	44.5	67	2	Q71KT2	Q71kt2 conus purpu
38	69	44.5	72	1	CKX7 CONFU	P56633 conus purpu
39	67.5	43.5	67	2	Q6XE29	Q6xe29 conus ermin
40	66.5	42.9	63	1	MT2 COLLI	P15787 columba liv
41	66	42.6	50	2	Q8JM47	Q8jm47 mamestra co
42	66	42.6	127	2	Q6IHC3	Q6ihc3 drosophila
43	65.5	42.3	81	2	Q9BP77	Q9bp77 conus arena
44	65	41.9	50	2	Q8QLC7	Q8qlc7 mamestra co
45	65	41.9	50	2	Q7IAA5	Q7iaa5 mamestra co

#### ALIGNMENTS

##### RESULT 1

```

CXOB CONST
ID CXOB CONST STANDARD; PRT; 72 AA.
AC P28881; Q9UB25;
DT 01-DEC-1992 (Rel. 24, Created)
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 25-OCT-2004 (Rel. 45, Last annotation update)
DE Omega-conotoxin SVIB precursor (SNX-183).
OS Conus striatus (Striated cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6493;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Venom duct;
RX MEDLINE=20037955; PubMed=10573284; DOI=10.1016/S0196-9781(99)00116-3;
RA Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-F.;
RT "Conopeptides from Conus striatus and Conus textile by cDNA cloning.";
RL Peptides 20:1139-1144 (1999).
RN [2]
RP SEQUENCE OF 46-71, AND SYNTHESIS.
RC TISSUE=Venom;
RX MEDLINE=93003172; PubMed=1390774;
RA Ramilo C., Zafaralla G.C., Nadasdi L., Hammerland L.G., Yoshikami D.,
RA Gray W.R., Kristipati R., Ramachandran J., Miljanich G., Olivera B.M.,
RA Cruz L.J.;
RT "Novel alpha- and omega-conotoxins from Conus striatus venom.";
RL Biochemistry 31:9919-9926 (1992).
RN [3]
RP STRUCTURE BY NMR.
RX MEDLINE=97070382; PubMed=8913308; DOI=10.1006/jmbi.1996.0576;
RA Nielsen K.J., Thomas L., Lewis R.J., Alewood P.F., Craik D.J.;
RT "A consensus structure for omega-conotoxins with different
selectivities for voltage-sensitive calcium channel subtypes:
comparison of MVIIA, SVIB and SNX-202.";
RL J. Mol. Biol. 263:297-310 (1996).
CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
and block voltage-sensitive calcium channels (VSCC). This toxin
blocks N-, P-, and Q-type calcium channels.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type
family.
-----
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EMBL; AF146346; AAD31906.1; -.

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DR PIR; C44379; C44379.  
 DR PDB; LMVJ; NMR; @=46-72.  
 DR InterPro: IPR004214; Conotoxin.  
 DR Pfam: PF02950; Conotoxin; 1.  
 KW 3D-structure; Amidation; Calcium channel inhibitor;  
 KW Direct protein sequencing; Ionic channel inhibitor; Neurotoxin;  
 KW Presynaptic neurotoxin; Signal; Toxin.  
 FT SIGNAL 1 22 Potential.  
 FT PROPEP 23 45  
 FT PEPTIDE 46 71 Omega-conotoxin SVIB.  
 FT DISULFID 46 61  
 FT DISULFID 53 65  
 FT DISULFID 60 71  
 FT MOD\_RES 71 71 Cysteine amide (G-72 provides amide group).  
 FT SEQUENCE 72 AA; 7741 MW; 1F75546AD39908 CRC64;  
 SQ

Query Match 100.0%; Score 155; DB 1; Length 72;  
 Best Local Similarity 100.0%; Pred. No. 5.8e-11;  
 Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CKLKGQSCRKTSYDCSGSGRSGKC 26  
 DB 46 CKLKGQSCRKTSYDCSGSGRSGKC 71

RESULT 2  
 CXOC\_CONMA STANDARD; PRT; 29 AA.  
 AC P37300;  
 DT 01-OCT-1994 (Rel. 30, Created)  
 DT 01-OCT-1994 (Rel. 30, Last sequence update)  
 DT 25-OCT-2004 (Rel. 45, Last annotation update)  
 DE Omega-conotoxin MVIIc precursor (SNX-230) (Fragment).  
 OS Conus magus (Magus cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=6492;  
 RN [1]  
 RP SEQUENCE FROM N.A., AND SYNTHESIS.  
 RX MEDLINE=92337922; PubMed=1352986; DOI=10.1016/0896-6273(92)90221-X;  
 RA Hillyard D.R., Monje V.D., Mintz I.M., Bean B.P., Nadasdi L.,  
 RA Ramachandran J., Miljanich G.P., Azimi-Zoonooz A., McIntosh J.M.,  
 RA Cruz L.J., Imperial J.S., Olivera B.M.;  
 RA "A new Conus peptide ligand for mammalian presynaptic Ca2+ channels.";  
 RL Neuron 9:69-77(1992).  
 RN [2]  
 RP STRUCTURE BY NMR.  
 RX MEDLINE=95248539; PubMed=7731037;  
 RA Parr-Jones S., Miljanich G.P., Nadasdi L., Ramachandran J.,  
 RA Basus V.J.;  
 RA "Solution structure of omega-conotoxin MVIIc, a high affinity ligand  
 of P-type calcium channels, using 1H NMR spectroscopy and complete  
 relaxation matrix analysis.";  
 RL J. Mol. Biol. 248:106-124(1995).  
 RN [3]  
 RP STRUCTURE BY NMR.  
 RX MEDLINE=99303703; PubMed=10373375; DOI=10.1006/jmbi.1999.2817;  
 RA Nielsen K.J., Adams D., Thomas L., Bond T., Alewood P.F., Craik D.J.,  
 RA Lewis R.J.;  
 RA "Structure-activity relationships of omega-conotoxins MVIIA, MVIIc and  
 14 loop splice hybrids at N and P/Q-type calcium channels.";  
 RL J. Mol. Biol. 289:1405-1421(1999).  
 RN [4]  
 RP MUTAGENESIS OF TYR-15.  
 RX MEDLINE=95408251; PubMed=7677735;  
 RA Kim J.I., Takahashi M., Martin-Moutot N., Seagar M.J., Ontake A.,  
 RA Sato K.;  
 RA "Tyr15 is essential for the binding of omega-conotoxin MVIIc to the  
 P/Q-type calcium channel.";  
 RT Biochem. Biophys. Res. Commun. 214:305-309(1995).  
 RL  
 CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind

CC and block voltage-sensitive calcium channels (VSCC). This toxin  
 CC blocks N-type calcium channels as well as types of high-threshold  
 CC voltage-gated calcium channels resistant to both dihydropyridines  
 CC and omega-conotoxin GVIA.  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type  
 CC family.  
 CC  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
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 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC  
 CC EMBL; S40826; AAE22674.1; -;  
 DR PIR; JH0699; JH0699.  
 DR PDB; 1CNN; NMR; A=3-29.  
 DR PDB; 1OMN; NMR; @=3-29.  
 KW 3D-structure; Amidation; Calcium channel inhibitor; Hydroxylation;  
 KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Toxin.  
 FT NON\_TER 1 1  
 FT PROPEP <1 2  
 FT PEPTIDE 3 28 Omega-conotoxin MVIIc.  
 FT BINDING 15 15 Essential for calcium channel binding.  
 FT DISULFID 3 18  
 FT DISULFID 10 22  
 FT DISULFID 17 28  
 FT MOD\_RES 9 9 Hydroxyproline (Probable).  
 FT MOD\_RES 28 28 Cysteine amide (G-29 provides amide group).  
 FT MUTAGEN 15 15 Y->A: High decrease in binding.  
 FT TURN 6 7  
 FT STRAND 9 9  
 FT HELIX 12 14  
 FT TURN 24 25  
 FT STRAND 27 27  
 SQ SEQUENCE 29 AA; 3071 MW; AC7A68948474728A CRC64;  
 Query Match 81.3%; Score 126; DB 1; Length 29;  
 Best Local Similarity 80.8%; Pred. No. 6.5e-08;  
 Matches 21; Conservative 0; Mismatches 5; Indels 0; Gaps 0;

QY 1 CKLKGQSCRKTSYDCSGSGRSGKC 26  
 DB 3 CKLKGAPCRKTYDCSGSGRSGKC 28

RESULT 3  
 CXOC\_CONCT STANDARD; PRT; 26 AA.  
 ID AC P58919;  
 DT 28-FEB-2003 (Rel. 41, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Omega-conotoxin CVIC.  
 OS Conus catus (Cat cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;  
 RN [1]  
 RP SEQUENCE, AND SYNTHESIS.  
 RC TISSUE=Venom;  
 RX MEDLINE=20519630; PubMed=10938268; DOI=10.1074/jbc.M002252200;  
 RA Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,  
 RA Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,  
 RA Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;  
 RA "Novel omega-conotoxins from Conus catus discriminate among neuronal  
 calcium channel subtypes.";  
 RL J. Biol. Chem. 275:35335-35344(2000).

```

Qy      1  CKLKGQSCRKTSYDCSGSGCRSGKC 26
      |||:|||||:|||||:
Db      41  CKKGKASCRRTSYDCTGSC-RSGRC 65

RESULT 5
Q9NCW3
ID Q9NCW3      PRELIMINARY;      PRT;      66 AA.
AC Q9NCW3;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE Four-loop conotoxin (Fragment).
OS Conus catus (Cat cone).

```

OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;

RN [1] SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174216; AAF89880.1; -;  
 DR HSSP; P05484; 1PEO.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 DR GO; GO:0009405; P:pathogenesis; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 FT NON\_TER 1  
 SQ SEQUENCE 66 AA; 7023 MW; E445339B696B0AC CRC64;

Query Match 74.5%; Score 115.5; DB 2; Length 66;  
 Best Local Similarity 76.9%; Pred. No. 2.2e-06;  
 Matches 20; Conservative 3; Mismatches 2; Indels 1; Gaps 1;

OY 1 CKLKGQSCRKTSYDCSGSGRSGKC 26  
 |||||:|||||:|||||:|||||:  
 Db 41 CKKGASCRKTSYDCGTGSC-RSGRC 65

## RESULT 8

CXOB\_CONCT STANDARD; PRT; 25 AA.

AC P58918;  
 DT 28-FEB-2003 (Rel. 41, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Omega-conotoxin CVIB.  
 OS Conus catus (Cat cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;

RN [1] SEQUENCE, AND SYNTHESIS.

RC TISSUE=Venom;  
 RX MEDLINE=20519630; PubMed=10938268; DOI=10.1074/jbc.M002252200;  
 RA Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,  
 RA Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,  
 RA Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;  
 RT "Novel omega-conotoxins from Conus catus discriminate among neuronal calcium channel subtypes.";  
 RL J. Biol. Chem. 275:35335-35344(2000).  
 CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind and block voltage-sensitive calcium channels (VSCC) (by similarity). This toxin blocks N-, P-, and Q-type calcium channels.  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.  
 CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type family.

DR HSSP; P37300; 1CNN.  
 KW Amidation; Calcium channel inhibitor; Direct protein sequencing;  
 KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Toxin.  
 FT DISULFID 1 16 By similarity.  
 FT DISULFID 8 20 By similarity.  
 FT DISULFID 15 25 By similarity.  
 FT MOD\_RES 25 25 Cysteine amide.  
 SQ SEQUENCE 25 AA; 2717 MW; D41A95F5FA9552 CRC64;

Query Match 71.9%; Score 111.5; DB 1; Length 25;  
 Best Local Similarity 76.9%; Pred. No. 2.8e-06;  
 Matches 20; Conservative 1; Mismatches 4; Indels 1; Gaps 1;

OY 1 CKLKGQSCRKTSYDCSGSGRSGKC 26  
 |||||:|||||:|||||:|||||:  
 Db 1 CKKGASCRKTSYDCGTGSC-RSGRC 25

## RESULT 9

QSN625 PRELIMINARY; PRT; 66 AA.  
 ID QSN625  
 AC QSN625;  
 DT 01-OCT-2000 (TrEMBLrel. 15, Created)  
 DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)  
 DE Four-loop conotoxin (Fragment).  
 OS Conus catus (Cat cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;

RN [1] SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174228; AAF89892.1; -;  
 DR EMBL; AF174222; AAF89886.1; -;  
 DR EMBL; AF174224; AAF89888.1; -;  
 DR EMBL; AF174225; AAF89889.1; -;  
 DR EMBL; AF174221; AAF89885.1; -;  
 DR HSSP; P05484; 1PEO.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 DR GO; GO:0009405; P:pathogenesis; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 FT NON\_TER 1  
 SQ SEQUENCE 66 AA; 7056 MW; EA11338A6968B7DA CRC64;

Query Match 71.9%; Score 111.5; DB 2; Length 66;  
 Best Local Similarity 73.1%; Pred. No. 6.3e-06;  
 Matches 19; Conservative 3; Mismatches 3; Indels 1; Gaps 1;

OY 1 CKLKGQSCRKTSYDCSGSGRSGKC 26  
 |||||:|||||:|||||:|||||:  
 Db 41 CKGTGASCRKTSYDCGTGSC-RSGRC 65

## RESULT 10

QSN628 PRELIMINARY; PRT; 66 AA.

ID QSN628  
 AC QSN628;  
 DT 01-OCT-2000 (TrEMBLrel. 15, Created)  
 DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)  
 DE Four-loop conotoxin (Fragment).  
 OS Conus catus (Cat cone).  
 OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;  
 OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;  
 OC Neogastropoda; Conoidea; Conidae; Conus.  
 OX NCBI\_TaxID=101291;

RN [1] SEQUENCE FROM N.A.  
 RA Duda T.F., Palumbi S.R.;  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF174229; AAF89893.1; -;  
 DR EMBL; AF174226; AAF89890.1; -;  
 DR HSSP; P05484; 1PEO.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0008200; F:ion channel inhibitor activity; IEA.  
 DR GO; GO:0009405; P:pathogenesis; IEA.  
 DR InterPro; IPR004214; Conotoxin.  
 DR Pfam; PF02950; Conotoxin; 1.  
 FT NON\_TER 1  
 SQ SEQUENCE 66 AA; 7057 MW; E7AA5E310968B7DA CRC64;

Query Match 71.9%; Score 111.5; DB 2; Length 66;  
 Best Local Similarity 73.1%; Pred. No. 6.3e-06;  
 Matches 19; Conservative 3; Mismatches 3; Indels 1; Gaps 1;



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RN SEQUENCE.
RP MEDLINE=87299637; PubMed=2441741;
RX Oliveira B.M., Cruz L.J., de Santos V., Lecheminant G.W., Griffin D.,
RA Zeikus R.D., McIntosh J.M., Galyean R., Varga J., Gray W.R.,
RA Rivier J.E.;
RT "Neuronal calcium channel antagonists. Discrimination between calcium
RL channel subtypes using omega-conotoxin from Conus magus venom.";
RL Biochemistry 26:2086-2090(1987).
CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC and block voltage-sensitive calcium channels (VSCC).
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -!- SIMILARITY: Belongs to the conotoxin O-superfamily. Omega-type
CC family.
DR PIR; JH0701; JH0701.
DR HSP; P05484; 1DW4.
KW Amidation; Calcium channel inhibitor; Direct protein sequencing;
KW Ionic channel inhibitor; Neurotoxin; Presynaptic neurotoxin; Toxin.
FT DISULFID 1 16
FT DISULFID 8 20
FT DISULFID 15 25
FT MOD RES 25 25 Cysteine amide.
SQ SEQUENCE 25 AA; 2626 MW; E4B9CE5EFAA3734D CRC64;

Query Match 70.6%; Score 109.5; DB 1; Length 25;
Best Local Similarity 73.1%; Pred. No. 4.8e-06;
Matches 19; Conservative 2; Mismatches 4; Indels 1; Gaps 1;

QY 1 CKLKGQSCRKTSYDCSGSCGRSGKC 26
   |||||:|||||:|||||
DB 1 CKGKGASCHRTSYDCCTGSCNR-GKC 25

RESULT 15
Q9NCV5 PRELIMINARY; PRT; 66 AA.
AC Q9NCV5;
DT 01-OCT-2000 (TRENBLrel. 15, Created)
DT 01-OCT-2000 (TRENBLrel. 15, Last sequence update)
DE 01-OCT-2003 (TRENBLrel. 25, Last annotation update)
DE Four-loop conotoxin (Fragment).
OS Conus catus (Cat cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=101291;
RN [1]
RP SEQUENCE FROM N.A.
RA Duda T.P., Palumbi S.R.;
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF174238; AAF89902.1; -.
DR HSP; P05484; 1FE0.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0008200; P:ion channel inhibitor activity; IEA.
DR GO; GO:0009405; P:pathogenesis; IEA.
DR InterPro; IPR004214; Conotoxin.
DR Pfam; PF02950; Conotoxin; 1.
FT NON TER 1
SQ SEQUENCE 66 AA; 7081 MW; 66E4898A6968B31B CRC64;

Query Match 70.0%; Score 108.5; DB 2; Length 66;
Best Local Similarity 69.2%; Pred. No. 1.4e-05;
Matches 18; Conservative 5; Mismatches 2; Indels 1; Gaps 1;

QY 1 CKLKGQSCRKTSYDCSGSCGRSGKC 26
   |:|||||:|||||:|||||
DB 41 CQGRGASCHRTSYDCCTGSC-RSGRC 65

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Search completed: March 23, 2005, 00:16:40  
Job time : 70.4191 secs